Compugen Ltd

ę.

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to score greater than or equal to the score of the result being and is derived by analysis of the total score distribution
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score
   942
90.5
90.5
89.5
89.5
89.5
89.5
89.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match
   0.22 5 5 5 5 6 6 0 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 0 100 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A_Geneseq_0401:*
1: /SIDS6/gcgdat.
2: /SIDS6/gcgdat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10:
11:
12:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-382-242-33
942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIDS6/gcgdata/geneseq/geneseqp/AA1980.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1981.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1982.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1983.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1983.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1985.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1985.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1987.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1989.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1989.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1990.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1992.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1993.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1993.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1995.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1995.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1997.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1999.DAT:

SIDS6/gcgdata/geneseq/geneseqp/AA1999.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               390729 seqs, 57163235 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   May 30, 2001, 15:22:10; Search time 19.89 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MSLNKHSWMDMIIFILSFSF.....AVFSFLPFYIRDYFKSYTKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 4.5
Copyright (c) 1993 - 2000 Com
                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
   184
442
258
258
258
342
342
342
342
342
342
342
342
342
                                                                                                                                                                                                                                                                                                                                                                                                                                             В
W23069
W71557
G14666
G14825
G14659
G14824
G14823
Y35687
W79385
                                                                                                                                                                                                                                                                                                                                                                                                                                             IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          528.810 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               by chance to have a the result being printed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          390729
                                                                                                  Staphylothermus ma
H. pylori GHPO 171
Helicobacter polyp
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
Arabidopsis thalia
                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                  Staphylococcus
                                                                    Chlamydia pneumoni
```

/ 9	80	81			81.5				82	82.5	Ñ	83	83	ω ·	83.5	ന			84.5	•		•	85		85.5			æ	. 86	86		5	8
	. 5	٠		٠							•	•			•				٠	•		•		•		•			•	•		•	
17.5	504	395	1141	1141	1137	487	487	355	840	474	378	360	335	649	406	363	430	397	284	266	240	212	279	358	266	240	212	473	432	428	397	214	435
La	21	21	21	20	22	18	12	21	21	19	21	16	20	21	21	19	20	16	21	21	21	21	21	20	21	21	21	18	18	20	21	21	19
2	15	Y81541	44	Y41752	в36936	W11804	R14149	Y75278	в11037	W58862	в53159	R80953	W92951	B12140	Y81562	W75788	W88344	W13742	G36490	G11177	G11178	G11179	Y88627	¥36803	G50402	G50403	10			1.1	G36489	\mathbf{L}	10
n. þyiðii þulative	വ	Streptococcus pneu	Human PRO768 (UNQ4		Integrin alpha cha		Human alpha 2 beta	ii	S. aureus mprF pro	halophilus x	ŗ	Recombinant high a	WO9905287 Seq ID 1	Hydrophobic domain	Streptococcus pneu	Staphylococcus aur	Salmonella enteric	Urea transporter p	Arabidopsis thalia	Arabidopsis thalia	Arabidopsis thalia	Arabidopsis thalia	H. influenzae dime	Chlamydia trachoma	'n		al	Ф	rmophil	£0	is thali	a	Ð

ALIGNMENTS

Staphylothermus marinus esterase F1-12LC.

17-FEB-1998 (first entry)

W23069;

W23069 standard; Protein; 184

A

RESULT W23069
ID 3069
ID 3069 Callen W, Kosmotka A, Link S, Maffia AM, M Reid J, Robertson DE, Swanson RV, Warren PV; Esterase; thermostable enzyme; ester; chiral compound; cheese; pulp; paper; lignin removal; sugar; lignocellulose; disease resistance; feedstuff. WPI; 1997-425035/39 Misc-difference Staphylothermus marinus strain 16-FEB-1996; 21-AUG-1997. W09730160-A1. 11-FEB-1997; (RECO-) RECOMBINANT BIOCATALYSIS INC 96US-0602359 97WO-US02039 176 Location/Qualifiers /note= "encoded by CAG" Murphy D;

Staphylococcus

```
RESULT
W98070
ID 870
XX W9
XX W9
XX W9
XX GH
DE H.
XX GH
KW Pe
XX Pe
XX He
XX W
PN WC
PN W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                        GHPO protein; Helicobacter infection; gastroduodenal disease; gastritis; peptic ulcer disease.
                                                            01-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      high temperature and in organic solvents, making them superior for use in production of pure chiral compounds used in pharmaceutical, agricultural and other chemical industries. A method is claimed for transferring an amino group from an amino acid to an alpha-keto acid using a claimed esterase. The enzymes may also be useful as ripening starters in cheese making, in lighin removal in paper and pulp manufacture, in carbohydrate derivative synthesis, in fermentable sugar production from lignocellulosic waste, in the study of plant wall structure, plant resistance to disease and organic matter decomposition and to select plants bred for production of highly degradable and arimal food.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This protein comprises the thermostable esterase F1-12LC of Staphylothermus marinus F1, a thermophilic sulphur archaea that grows optimally at 85 deg C and pH 6.5. Newly identified polynucleotides (T79321-30) encoding claimed esterases (W23069-77, W23089) were recovered from genomic gene libraries. They can be
      29-JUL-1997;
                                                                                                                                                                                                                              Helicobacter pylori
                                                                                                                                                                                                                                                                                                                                                                            H. pylori GHPO 1719 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W98870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic acid encoding heat stable esterase from thermophilic bacteria - which is active in organic solvents, useful in cheese paper manufacture, and to study plant resistance to disease
                                                                                                                                                                                                                                                                                                                                                                                                                                        31-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W98870 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       production of highly degradable animal feeds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       used for recombinant production of the enzymes in host cells, and as probes to identify related sequences. The esterases are stable at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ytkr 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YTKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AYFIAISILDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYIRDYFKS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T79321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Page 53-54; 113pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A
A
      97US-0902615
                                                         98WO-US06371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 942; DB 18;
Pred. No. 4.4e-102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 184;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
```

```
망
                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
29-JUL-1997;
14-NOV-1996;
01-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This sequence represents a Helicobacter pylori GHPO protein of the invention. The polypeptides can be used for preventing or treating Helicobacter infections, and gastroduodenal diseases associated with these infections, including acute, chronic, and atrophic gastritis, and peptic ulcer diseases, e.g. gastric and duodenal ulcers. They can also be used for the production of antibodies. The products can also be used for
                                                                                                    W09821225-A1
                                                                                                                                                       ulcer.
                                                                                                                                                                  GHPO 1719;
                                                                                                                                                                                                                    09-NOV-1998
                                                                                                                                                                                                                                                                     W71557 standard; Protein; 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-APR-1997;
24-JUN-1997;
                                                  14-NOV-1997;
                                                                                                                          Helicobacter pylori
                                                                                                                                                                                         Helicobacter polypeptide GHPO 1719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 8; Page 1972-1974; 2054pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               detection and diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New isolated Helicobacter polynucleotides – used to develop
for the diagnosis, prevention and treatment of Helicobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; X14589.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1998-542293/46.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Al-Garawi A, Kleanthous H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (HUMA-) HUMAN GENOME SCI INC.
(INMR) MERIEUX ORAVAX PASTEUR MERIEUX SERUMS
                                                                                                                                                                                                                                                                                                                                                                                      323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          infections and gastrointestinal diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        211
                                                                                                                                                                                                                                                                                                                                 383 iimplgg---
                                                                                                                                                                                                                                                                                                                                                                                                                                     265 ftfvfeyga-nvsqgtgliftslpvvfgqm-gaigilvsilflialafagitstvallep
                                                                                                                                                                                                                                                                                                                                                          154 -- IPRGAAIPELLAVFSFLPFYIR 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                              w
                                                                                                                                                                                                                                                                                                                                                                                   svmylteryqysrfkvtwglvalifvvgvvlifslhkdykdyltffekslfdwldfasst
                                                                                                                                                                                                                                                                                                                                                                                                                                                            YSWSRVKGSLIISMG----VFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFI--AISILDK 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FSFPLTMIALAISMSSWFNIWNNALSD-LGHAVKSSVAPIFNLGLAIGGILIVIVGLRNL
                                                                                                                                                                                                                                                                                                                                                                                                             S-----W--IAVLLIGHIAMWYLH-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ftyslgqvffslsiglginityaavtdktqnllksti...--wvvlsgilislvaglmi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                               infection; therapy; diagnosis; vaccine; gastritis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       442 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                   (first entry)
97US-0902615.
96US-0749051.
97US-0831309.
                                                  97WO-US21353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0833457.
97US-0881227.
                                                                                                                                                                                                                                                                                                                                    -matfifmgwvlk 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Miller C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 90.5; DB 19; Pred. No. 0.027;
                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Comen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tomb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  J.
                                                                                                                                                                                                                                                                                                                                                                                                              ----FASE-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 442;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 products
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      264
                                                                                                                                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                                                                                                                                                                                                                                       322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11;
```

```
RESULT
G14660
                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                  밁
   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This claimed Helicobacter pylori polypeptide, designated GHPO 1719, can be used in vaccination methods for preventing or treating Helicobacter infection. 85 Helicobacter polypeptides (see Helicobacter infection. 85 Helicobacter polypeptides (see W71474-W71558) are claimed, as well as isolated polynucleotides (see V52009-93) that encode them. The invention also provides: methods for producing these Helicobacter polypeptides in recombinant host systems, and related expression cassettes, vectors and transformed or transfected host cells; live vaccine vectors that contain the polynucleotides of the invention and which can be used to prevent or treat Helicobacter infection; therapeutic and/or prophylactic methods involving administration of polynucleotide molecules, polypeptides or monospecific antibodies; methods for the polypeptides or monospecific antibodies; methods for purifying the presence of Helicobacter in samples using e.g. the polypeptides or monospecific antibodies; and methods for purifying the presence of Helicobacter in samples using e.g.
                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-APR-1997;
01-APR-1997;
24-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1998-297855/26.
N-PSDB; V52092.
                                                                                                 G14660;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Helicobacter polynucleotide and polypeptide sequences - useful to treat or prevent gastrointestinal infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HUMA-) HUMAN GENOME SCI INC.
(PLAC ) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.
(INMR ) MERIEUX ORAVAX PASTEUR MERIEUX SERUMS.
           Protein identification; signal transduction pathway; metabolic pathway; hwhridisation assav; genetic mapping; gene expression control; promoter;
                                                                                                                       G14660 standard; Protein;
                                               Arabidopsis thaliana protein fragment SEQ ID NO: 14607.
                                                                         17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   chromatography.
 termination sequence
                                                                                                                                                                                                        154 -- IPRGAAIPELLAVESFLPFYIR 175
                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                                                                  211
                                                                                                                                                                                   383 iimplgg----matfifmgwvlk 401
                                                                                                                                                                                                                                                                                   265
                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                         18 FSFPLTMIALAISMSSWFNIWNNALSD-LGHAVKSSVAPIFNLGLAIGGILIVIVGLRNL
                                                                                                                                                                                                                                                                                                          77
                                                                                                                                                4
                                                                                                                                                                                                                                                                               ::: |: :| :| :| || ::| | || || ||:| || ::|:
ftfvfeyga-nvsqgtglifts_pvvfgqm-galgilvsilfllalafagitstvallep
                                                                                                                                                                                                                                                                                                                                 ftyslgqvffslsiglginityaavtdktqnllksti-----wvvlsgilislvaglmi 264
                                                                                                                                                                                                                                                                                                         YSWSRVKGSLIISMG---VFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFI--AISILDK 131
                                                                                                                                                                                                                                   svmylteryqysrfkvtwglvalifvvgvvlifslhkdykdyltffekslfdwldfasst 382
                                                                                                                                                                                                                                                          S-----FASE- 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page 339-340; 362pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                             442 AA;
                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Haas R,
Tomb J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0833457.
97US-0834705.
97US-0881227.
                                                                                                                                                                                                                                                                                                                                                                                             \ 9.6%;
22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kleanthous H, Meyer T, Miller C;
                                                                                                                        258
                                                                                                                                                                                                                                                                                                                                                                                 46;
                                                                                                                                                                                                                                                                                                                                                                                             Score 90.5; DB Pred. No. 0.027;
                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                       DB 19; Length 442;
                                                                                                                                                                                                                                                                                                                                                                                 54;
                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                 59;
                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                         76
                                                                                                                                                                                                                                                                                                                                                                                11;
  22-JUN-1999;
23-JUN-1999;
23-JUN-1999;
24-JUN-1999;
28-JUN-1999;
                                                                                  18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
                                                          18-JUN-1999;
21-JUN-1999;
                                                                                                                                                            18-JUN-1999;
18-JUN-1999;
                                                                                                                                                                                                                                                         10-JUN-1999;
14-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana.
                                                                                                                                               8-JUN-1999;
8-JUN-1999;
                                                                                                                                  -JUN-1999
                                                                                                                                                                                                                                                -JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000EP-0301439
            990S-0139750.
990S-0139763.
990S-0139817.
990S-0139899.
990S-0140353.
990S-0140354.
990S-0140695.
                                                                                               990S-0139119.
990S-0139453.
990S-0139453.
990S-0139454.
990S-0139454.
990S-0139456.
990S-0139457.
990S-0139459.
990S-0139459.
990S-0139459.
990S-0139460.
990S-0139460.
                                                                                                                                                                                                                                                                    9905-0126785.
9905-0128714.
9905-0128714.
9905-0130449.
9905-0130449.
9905-013040.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-013248.
9905-0134218.
9905-0134218.
9905-0134218.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
9905-013421.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0123180.
99US-0123548.
99US-0125788.
99US-0126264.
```

```
RESULT
G14825
ID G
XX
AC GI
XX
DT 11
                                                                                            Š
                                                                                                                            Q
                                                                                                                                                          δã
                                                                                                                                                                                        δÃ
                                                                                                             밁
                                                                                                                                            ₽
                                                                                                                                                                           밁
                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 48
                                                                                                                                                                                                                                                                                                                                                                                          13-SEP-1999
15-SEP-1999
16-SEP-1999
20-SEP-1999
21-SEP-1999
23-SEP-1999
24-SEP-1999
24-SEP-1999
04-OCT-1999
04-OCT-1999
06-OCT-1999
06-OCT-1999
07-OCT-1999
11-OCT-1999
                                                                                                                                                                                                                                        14-OCT-1999
11-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
22-OCT-1999
22-OCT-1999
22-OCT-1999
25-OCT-1999
25-OCT-1999
25-OCT-1999
26-OCT-1999
26-OCT-1999
26-OCT-1999
26-OCT-1999
27-OCT-1999
28-OCT-1999
28-OCT-1999
29-OCT-1999
        17-OCT-2000
                       G14825;
                                      G14825
                                                                            | 102 terldyssa-----vailgfslilailrtfdirveaarvmvsapilafvtthilyinfy
                                                                                                                                                    1 Similarity 23.3
48; Conservative
                                       standard;
       (first entry)
                                                                                                                                                                                                                                        9905-0153758
9905-0154718
9905-0154779
9905-0155139
9905-0155559
9905-01556596
9905-0157751
9905-0158029
9905-0158029
9905-0158029
9905-0158029
9905-0159293
9905-0159293
9905-0159293
9905-0159329
9905-0159329
9905-0159330
9905-0159331
9905-0159331
9905-0159637
9905-0160741
9905-0160741
9905-0160741
9905-016078
9905-016078
9905-0160815
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
9905-0161404
                                      Protein; 258
                                                                                                                                                                                                                9.5%;
                                                                                                                                                                                                          38;
                                                                                                                                                                                                        Score 89.5; D. Pred. No. 0.01: 38; Mismatches
                                       Ą
                                                                                                                                                                                                                .018;
                                                                                                                                                                                                                         21;
                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                         258;
                                                                                                                                                                                                          51;
                                                                                                                                                                                                          Gaps
                                                                                                                                                           100
                                                                                                                                            155
                                                                                                                                                                                                          11;
```

29-JUN-1999
31-JUN-1999
01-JUL-1999
01-JUL-1999
02-JUL-1999
13-JUL-1999
14-JUL-1999
15-JUL-1999
16-JUL-1999
16-JUL-1999
16-JUL-1999
16-JUL-1999
19-JUL-1999
19-JUL

9905-0140991
9905-0141287
9905-0141287
9905-0142154
9905-0142354
9905-0143263
9905-0143263
9905-0144085
9905-0144085
9905-0144085
9905-0144085
9905-0144083
9905-0144083
9905-0144084
9905-0144084
9905-0144084
9905-0144088
9905-0144088
9905-0144088
9905-0145214
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388
9905-0146388

קיק קיק א מק מק מק מק מק מק מק מק מק מק מק מק מק מ	יק ק אק ק אק ק ק ק ק ק ק ק ק ק ק ק ק ק ק	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	XX	DE
14 - JUN - 1999 16 - JUN - 1999 17 - JUN - 1999 17 - JUN - 1999 18 - J	MAY - J MAY - J MAY - J MAY - J J J J J J J J J J J J J J J J J J J	APR-19 APR-19 APR-19 APR-19 APR-19 APR-19 APR-19 APR-19 MAY-19 MAY-19 MAY-19 MAY-19 MAY-19 MAY-19 MAY-19		Arabidopsis t
990S-0139452 990S-0139452 990S-0139453 990S-0139454 990S-0139455 990S-0139457 990S-0139457 990S-0139459 990S-0139461 990S-0139461 990S-0139461 990S-0139463 990S-0139463 990S-0139463 990S-0139463 990S-013963	990S-0134768 990S-0134941 990S-0135124 990S-0135353 990S-0136021 990S-0136021 990S-0136021 990S-0137222 990S-0137222 990S-0137528 990S-0137528 990S-0137528 990S-0137528 990S-0138040	990S-0130479 990S-0130449 990S-0130510 990S-0130891 990S-0131449 990S-0132407 990S-0132484 990S-0132486 990S-0132487 990S-0132487 990S-0134287 990S-0134256 990S-0134218 990S-0134218 990S-0134218	2 hei	thaliana protein
			mapping; gene expres	fragment SEQ ID NO: 14834.
			ter;	
				_
ייטיסיסיסיסיסיסיסיסיסיסיסיסיסיסיסיסיסיס	קיקי אין אין אין אין אין אין אין אין אין אי	ט י י י י י י י י י י י י י י י י י י י	י סי	PR
	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		:2222222	-JUN-199
9008-0148 9008-0148 9008-0148 9008-0148 9008-0149 9008-0149 9008-0149 9008-0149 9008-0149 9008-0150	9003-0145 9003-0145 9003-0146 9003-0146 9003-0146 9003-0147 9003-0147 9003-0147 9003-0147 9003-0147	90S-0145 90S-0144 90S-0144 90S-0144 90S-0144 90S-0145 90S-0145 90S-0145 90S-0145 90S-0145	990S-0140353 990S-0140354 990S-0140823 990S-0140991 990S-0141847 990S-0142154 990S-014287 990S-014289 990S-0142927 990S-0142977 990S-014354 990S-0143624 990S-0143624 990S-0144085 990S-0144085 990S-0144085 990S-0144333 990S-0144333	9US-0139

```
RESULT
G14659
ID GJ
                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 48
                                                                                                                                                                                                                                                                                                                     13-SEP-1999
16-SEP-1999
20-SEP-1999
20-SEP-1999
24-SEP-1999
24-SEP-1999
24-SEP-1999
24-SEP-1999
24-SEP-1999
24-SEP-1999
24-SEP-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-AUG-1999;
31-AUG-1999;
01-SEP-1999;
07-SEP-1999;
 G14659 standard; Protein; 342 AA.
                                                                204
                                                                                          157
                                                                                                                 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-SEP-1999
                                                                                                                                          101
                                                                                                                                                                102 terldyssa-----vailgfslilailrtfdirveaarvmvsapilafvtthilyinfy
                                                                                                                                                                                           46
                                                                                                                                                                                                                      43
                                                                                                                                                                                                                                           1 MSLNKHSWMDMIIFILSFSFPLTMIALA-----ISMSSWF--NIWNNALSDL
                          6
                                                                                                             GAAIPELLAVESFLPEYIRDYFKSYT 182
                                                                                                                                                                             GHAVKSSVAPIFNLGLAIGGILIVIVGLRNL---YSWSRVKGSLIISMGVFLNL--IGVF
                                                                                                                                                                                                               lamhfhgwlsffimiy-yklplkqdrtayyeyvglwhiygllsmnswfwsavfhsrdvdl
                                                                                                                                                                                                                                                                    ch 9.5%;
l Similarity 23.3%;
48; Conservative 3
                                                              -lleiydfppy--egyfdahs 221
                                                                                                                                                                                                                                                                                                                     990S-0151303

990S-015131303

990S-01513930

990S-0152563

990S-0154018

990S-0154018

990S-0154486

990S-0155486

990S-01554586

990S-0156596

990S-0156596

990S-0158820

990S-0158820

990S-0158820

990S-0158820

990S-0158820

990S-0158820

990S-0158820

990S-0158820

990S-0158820

990S-0159293

990S-0159293

990S-0159293

990S-0159293

990S-0159293

990S-0169293

990S-016981

990S-016981

990S-016981

990S-0161406

990S-0161359

990S-0161406

990S-0161361

990S-0161361

990S-0161361

990S-0161361

990S-0161392

990S-0161392

990S-0161392

990S-0161392
                                                                                                                                                                                                                                                                  Score 89.5; DB 21; Pred. No. 0.018; 38; Mismatches 69;
                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                             258;
                                                                                                                                                                                                                                                                    51;
                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                          100
                                                                                                                                         156
                                                                                                                                                                    155
                                                                                                                                                                                                                   101
                                                                                                                                                                                                                                            45
                                                                                                                 203
                                                                                                                                                                                                                                                                    11;
  14 - MAY 1999
18 - MAY 1999
19 - MAY 1999
20 - MAY 1999
21 - MAY 1999
24 - MAY 1999
25 - MAY 1999
27 - MAY 1999
27 - MAY 1999
28 - MAY 1999
01 - JUN 1999
10 - JUN 1999
11 - JUN 1999
                                                                                                                                                                                                                                                                                                                                                      14-MAY-1999;
14-MAY-1999;
14-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                          06-MAY-1999;
06-MAY-1999;
07-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
29-MAR-1999;
01-APR-1999;
06-APR-1999;
08-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                04-MAY-1999
05-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-FEB-1999;
05-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G14659;
                                                                                                                                                                                                                                                                                                                                                                                                 11-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-APR-1999
30-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-APR-1999
23-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-APR-1999
19-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          thaliana protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000EP-0301439
990S-0125788
990S-0126785
990S-0126785
990S-0126785
990S-0128245
990S-0130845
990S-0130849
990S-0132846
990S-0132487
990S-0132487
990S-0132487
990S-0132487
990S-0132487
990S-0132487
990S-0132487
990S-0134219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0121825
99US-0123180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fragment SEQ ID NO:
```

א סיסים יטימים סיסים מיסים מ

망

멂 Š В Ş 용 S

```
δÃ
                  δÃ
                                         В
                                                          δõ
                                                                                  밁
                                                                                                                          밁
                                                                                                                                             δÃ
                                                                                                                                                                                                             밁
                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                   Matches
                                                                                                                                                                                                                              11-SEP-1999
11-SEP-1999
11-SEP-1999
11-SEP-1999
22-SEP-1999
23-SEP-1999
24-SEP-1999
25-SEP-1999
26-OCT-1999
17-OCT-1999
11-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-AUG-1999;
26-AUG-1999;
27-AUG-1999;
27-AUG-1999;
27-AUG-1999;
30-AUG-1999;
31-AUG-1999;
31-AUG-1999;
01-SEP-1999;
07-SEP-1999;
                                      288 -----lleiydfppy--egyfdahs 305
                    157
                                                                                                                          127
                                                                                                      46
                                                                                                                       terldyssa-----vailgfslilailrtfdirveaarvmvsapilafvtthilyinfy
                                                                                           GAAIPELLAVFSFLPFYIRDYFKSYT 182
                                                                                                                                                                  1 Similarity 23.3
                                                                                                                                                                                                           99US-0150566.
99US-01510884.
99US-0151065.
99US-0151066.
99US-0151066.
99US-0151303.
99US-01513303.
99US-0152363.
99US-0152363.
99US-0154039.
99US-0154039.
99US-0154039.
99US-0155486.
99US-01556596.
99US-01556596.
99US-01580229.
99US-01580229.
99US-0158039.
99US-0159331.
99US-0160767.
99US-0160767.
99US-0160767.
99US-0160767.
99US-0160769.
99US-0160815.
99US-016081.
99US-016081.
99US-016081.
99US-0161361.
                                                                                                                                                                             9.5%;
23.3%;
                                                                                                                                                                 ; Score 89.5; DB
; Pred. No. 0.025;
38; Mismatches
                                                                                                                                                                                       21;
                                                                                                                                                                   69;
                                                                                                                                                                                       Length
                                                                                                                                                                   Indels 51;
                                                                                                                                                                                        342;
                                                                                                                                                                  Gaps
                                                                                                      100
                                                                                 239
                                                                                                                          185
                                                                                                                                               5
                                                                                                                                                                   11;
```

18-JUN 1999
18-JUN 1999
18-JUN 1999
18-JUN 1999
21-JUN 1999
22-JUN 1999
22-JUN 1999
23-JUN 1999
24-JUN 1999
20-JUL 1999
20-JUL 1999
20-JUL 1999
20-JUL 1999
21-JUL 1999
22-JUL 1999
22-JUL 1999
23-JUL 1999
22-JUL 1999
23-JUL 1999
24-JUL 1999
24-JUL 1999
25-JUL 1999
25-JUL 1999
26-JUL 1999
27-JUL 1999
28-JUL 1999
28-JUL

9908-0139462
9908-0139753
9908-0139753
9908-0140625
9908-0140625
9908-0140625
9908-0140625
9908-014142
9908-014128
9908-014128
9908-014290
9908-014290
9908-014290
9908-014394
9908-014394
9908-014394
9908-014394
9908-014394
9908-014394
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393
9908-014393

-1999 -1990 -1990

```
GGIAGENT COLOR PRESCUT COLOR PRESCUTATION COLOR P
   25-FEB 1999
05-MAR 1999
09-MAR 1999
23-MAR 1999
25-MAR 1999
25-MAR 1999
26-APR 1999
16-APR 1999
16-APR 1999
27-APR 1999
23-APR 1999
23-APR 1999
23-APR 1999
23-APR 1999
23-APR 1999
24-APR 1999
25-APR 1999
26-MAY 1999
27-MAY 1999
11-MAY 1999
11-JUN 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    G14824;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G14824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000EP-0301439
   9908-0121825
9908-012348
9908-0125788
9908-0125788
9908-0126684
9908-0126785
9908-0128714
9908-0128714
9908-0130819
9908-0132484
9908-0132484
9908-0132484
9908-0132485
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
9908-0134219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ID NO: 14833
   18-JUN 1999
21-JUN 1999
22-JUN 1999
23-JUN 1999
23-JUN 1999
24-JUN 1999
25-JUN 1999
26-JUN 1999
16-JUN 1999
16-JUN 1999
17-JUN 1999
18-JUN 1999
18-JUN 1999
19-JUN 1999
19-JUN
9908-0139457
9908-0139459
9908-0139460
9908-0139461
9908-0139461
9908-0139763
9908-0139763
9908-0140554
9908-0140554
9908-0140554
9908-0140554
9908-014060
9908-014060
9908-014254
9908-014256
9908-014256
9908-014334
9908-0144632
9908-0144632
9908-014506
9908-0146688
9908-0147706
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-014776
9908-0147716
9908-0147716
```

```
δÃ
                                                                 밁
                                                                                  Š
                                                                                                                                         밁
                                                                                                    Query Match
Best Local S
Matches 48
                                                                                                                                       20-AUG-1999
20-AUG-1999
20-AUG-1999
23-AUG-1999
24-AUG-1999
25-AUG-1999
27-AUG-1999
28-SEP-1999
29-SEP-1999
20-SEP-1999
21-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
26-CCT-1999
27-CCT-1999
28-CCT-1999
28-CCT-1999
28-CCT-1999
29-CCT-1999
101 DEVYGWIHELVSVLFFLS---IIAYFIAISILDKSW-IAVLLIIGHIAMWYLHFASEIPR 156
                           186 terldyssa-----vailgfslilailrtfdirveaarvmvsapilafvtthilyinfy
                                                                 127
                                               46
                                                              MSLNKHSWMDMIIFILSFSFPLTMIALA------ISMSSWF--NIWNNALSDL 45
                                       GHAVKSSVAPIFNLGLAIGGILIVIVGLRNL---YSWSRVKGSLIISMGVFLNL---IGVF
                                                                                                    ch 9.5%;
l Similarity 23.3%;
48; Conservative 3
                                                                                                                                       99US-015066.
99US-01510884.
99US-0151086.
99US-0151080.
99US-0151080.
99US-0151300.
99US-0151303.
99US-0153363.
99US-0153758.
99US-01554039.
99US-01554039.
99US-0155486.
99US-0155486.
99US-0155659.
99US-0155659.
99US-0155659.
99US-0155865.
99US-0158022.
99US-0158022.
99US-0158022.
99US-0159331.
99US-0159331.
99US-0159331.
99US-0159331.
99US-0159331.
99US-0159331.
99US-0159331.
99US-0160768.
99US-0160768.
99US-0160784.
99US-0160989.
99US-0160989.
99US-0161360.
99US-0161360.
99US-0161361.
99US-0161932.
99US-0161361.
                                                                                                    38;
                                                                                                   Score 89.5; DB
Pred. No. 0.025;
8; Mismatches
                                                                                                                   21;
                                                                                                    69;
                                                                                                    Indels
                                                                                                                     Length 342;
                                                                                                    51;
                                                                                                    Gaps
                             239
                                             100
                                                                                                    11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
```

```
밁
25-FEB-1999
05-MAR-1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
25-MAR-1999
06-APR-1999
16-APR-1999
16-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
24-MAY-1999
14-MAY-1999
15-MAY-1999
16-MAY-1999
17-MAY-1999
18-MAY-1999
18-MAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana protein fragment SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G14823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       G14823 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240 kldygw-nmivcvamgvsqlflwarwaavsshpsnwklwvvviagglam-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----lleiydfppy--egyfdahs 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAIPELLAVFSFLPFYIRDYFKSYT 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000EP-0301439
990S-0129845
990S-0130449
990S-0130489
990S-0132486
990S-0132486
990S-0132486
990S-0132486
990S-0134216
990S-0134219
990S-0134219
990S-0134219
990S-0134219
990S-0134219
990S-0134221
990S-0135353
990S-0135529
990S-0136782
990S-0137528
990S-0137528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0123180.
99US-0123548.
99US-0125788.
99US-0126264.
99US-0126785.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0127462
99US-0128234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0121825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein; 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NO: 14832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    287
```

```
Qy
                                 Qy
                 B
                                                                                         Query Match
Best Local S
Matches 48
                                                                                      13-AUG-1999
16-AUG-1999
17-AUG-1999
18-AUG-1999
20-AUG-1999
20-AUG-1999
20-AUG-1999
23-AUG-1999
23-AUG-1999
24-AUG-1999
27-AUG-1999
28-SEP-1999
28-SEP-1999
29-SEP-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
22-CCT-1999
22-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
27-CCT-1999
28-CCT-1999
29-CCT-1999
21-CCT-1999
21-CCT-1999
22-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
28-CCT-1999
                 141
46
                                  \vdash
GHAVKSSVAPIFNLGLATGGILIVIVGLRNL---YSWSRVKGSLIISMGVFLNL--IGVF
             MSLNKHSWMDMIIFILSFSFPLTMIALA---
                                                    ch 9.5%;
1 similarity 23.3%;
48; Conservative
                                                                                      99US-0148565
99US-0149175
99US-0149175
99US-014923
99US-0149923
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151333
99US-0151333
99US-0151333
99US-0151358
99US-0160741
99US-0160815
99US-0160815
99US-0161359
                                                    38;
                                                  Score 89.5; I
Pred. No. 0.02
18; Mismatches
                                                             DB
.027;
                                                                    21;
                                                    69;
                                                                     Length
                                                                     356;
                                                    51;
                                                    Gaps
100
                 199
                                   45
                                                    11;
```

16-JUN-1999
18-JUN-1999
18-JUN

9908-0139453
9908-0139454
9908-0139455
9908-0139456
9908-0139461
9908-0139461
9908-0139461
9908-0139461
9908-0139463
9908-0139463
9908-0140323
9908-0140323
9908-0140823
9908-0140823
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284
9908-014284

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                         δÃ
                                                      밁
                                                                                 Q.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                            Query Match
Best Local Similarity
                                                                                                                 Matches
                                                                                                                                                                                                               x34584-Y35879 represent the proteins encoded by all the open reading frames in the complete genome (see x91990) of Chlamydla pneumoniae. C. pneumoniae causes respiratory disease such as pneumonia and bronchitis and is thought to be a contributing factor in heart disease, sarcoidosis, sinusitis, purulent otitis media, crythema nodosum or pharyngitis. The polypeptides encoded by the open reading frames of the C. pneumoniae genome (see Y34584-Y35879) can be used in immunogenic compositions as vaccines. Vectors containing C. pneumoniae nucleotides sequences can also be used as immunogenic compositions, especially where the vector directs the expression of a neutralising epitope of C. pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chlamydia pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sinusitis; purulent otitis media; erythema nodosum; pharyngitis; vaccine; neutralising epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Y35687;
                                                                                                                                                                                                                                                                                                                                                                                                                         Genome sequence of Chlamydia pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Griffais
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-NOV-1998;
21-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-JUN-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9927105-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chlamydia pneumoniae transport polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Y35687 standard; Protein; 485 AA
                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                           Page 1399-1400; Disclosure; 1912pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1999-357842/30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GEST ) GENSET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Respiratory disease; pneumonia; bronchitis; heart disease; sarcoidosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  254 kldygw-nmivcvamgvsqlflwarwaavsshpsnwklwvvviagglam-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             200
   209
                            64
                                                                                    12 IIFILSFSFPLTMIALAISMSSWF------NIWNNALSDLGHAVKSSVAPIFNLGLAI 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
kgtmlvtlwafigiegavvmsgraknplsvggatvlgflgclt----iyilfsllpfgs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGILIV----IVGLRNLYSWS-RVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFFLS 118
                                                      iinvigtifkiipliifiiltafffklavfktdfw-----ghavtkaqpslgsvssql 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEVYGWIHFLVSVLFFLS---IIAYFIAISILDKSW-IAVLLIIGHIAMWYLHFASEIPR 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAIPELLAVFSFLPFYIRDYFKSYT 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---lleiydfppy--egyfdahs 319
                                                                                                                                                                                      485 AA;
                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0107078.
97FR-0014673.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98WO-IB01890
                                                                                                                               9.5%;
                                                                                                                 33;
                                                                                                              Score 89.5; DB Pred. No. 0.04; 3; Mismatches
                                                                                                                                            DB 20;
                                                                                                                 ;83
                                                                                                                                           Length 485;
                                                                                                                 Indels
                                                                                                                 45;
                                                                                                                                                                                                                                                            pneumoniae
                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                 9
```

멍 δÃ

43

12 IIFILSFSFPLTM------IALAISMS-SWFNIWNNAL------SDLGHAVKS--- 51 vvfvv--glplslakkapghaalaalmgylmfntfinailtqwphtfganlekgvenvpg 100

Conservative

32;

Mismatches

59;

Indels

60;

Gaps

12;

```
W79385
XX W79385
XX W79385
XX W79385
XX TraG P
KW TraG P
KW Dacter
XX Staphy
XX TraG P
KW Dacter
XX Staphy
XX OA-JUN
XX W09823
                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
Query Match
Best Local Similarity
Matches 47; Conserv
                                                                                                                                                                    W79385-87 represent a Staphylococcus aureus WCHU (NCIMB 40771) protein of unknown function (W79385) and proteins that have homology with an Escherichia coli phophottransferase system II permease (W78386-87). The proteins are used to generate antibodies and to screen for antimicrobials. The products are used to treat or prevent bacterial infections, particularly where caused by S. aureus but also against Helicobacter pylori. Particular applications are to treat subjects before surgery or insertion of an in-dwelling device (alternatively the device itself is impregnated before placement). The nucleic acid sequence is
                                                                                       Sequence
                                                                                                                      used as sources of antisense sequences (for therapeutic use) or regulatory elements for controlling expression of bacterial genes, and for antibacterial screening. The protein can be also used as a vaccine
                                                                                                                                                                                                                                                                                                                                                       Claim 5; Page 69; 114pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                          New nucleic acid from Staphylococcus aureus NCIMB 40771 - useful for, e.g. diagnosis, prevention and treatment of bacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1998-322718/28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-JUN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TraG protein; Lactococcus lactis; treatment; prevention,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Staphylococcus aureus protein of unknown function
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W79385;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W79385 standard; Protein; 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (SMIK ) SMITHKLINE BEECHAM CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9823738-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bacterial infection; Helicobacter pylori; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                           infection(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  324 tfpeifti 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160 -IPELLAV 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        264 lfqhqlanipnpstagvldilvgkwgevlmnvgliiavlsswlswtiivaeipfsaakng
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          119 IIAYFIA------ISILDKSWIAVL----LIIGHIAMW--YLHFASEIPRGAA---
: : : : : : | | | | | | | | : : | : | | | | |
                                                                                       249 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96US-0031469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97WO-US22092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "this residue is encoded by
                  9.2%;
                    Score 87; DB 19; Pred. No. 0.033;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                  Length 249;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           159
```

```
RESULT 11
Y70156
                                                                                                                                                           ş
                                       В
                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                       Query Match
Best Local
                                                                                            Matches
                                                                                                                                                                              The present sequence is a protein (168339_1) from Staphylococcus aureus genomic DNA library. This sequence is useful in preparation of vaccines for prevention or attenuation of Staphylococcal infections (especially S.aureus infections) which may cause conditions such as neonatal conjunctivitis, osteomyelitis, skin infections and toxic shock syndrome. The present sequence is also useful for detecting Staphylococcal infections in biological samples.
                                                                                                                                                                                                                                                                                                      Claim 9; Page 22; 144pp; English.
                                                                                                                                                                                                                                                                                                                                           Staphylococcus aureus polypeptide useful for preventing or attenuating a Staphylococcal infection comprises one of 32 sequences of 100-1277
                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2000-237864/20.
N-PSDB; Z51236, Z512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-JUN-2000
                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                amino acids or their fragments -
                                                                                                                                                                                                                                                                                                                                                                                                                            Bailey CC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                      (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-MAR-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200012678-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               toxic shock syndrome; osteomyelitis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vaccine; antibacterial; prevention; attenuation; detection; Staphylococcal infection; neonatal conjunctivitis; skin inf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Staphylococcus aureus protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Y70156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Y70156 standard;
                                       290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
               97
                                                             37 IWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNL 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  52
                                   vwinais----vik-----ytlgfgvglvdyvhig-----sqingillvahntylqi 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lksiagiatldtnilggiiisaiitwihnryyskrlp--
             IGVFDEVYG--WIHFLVSVLF--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --liptglhhfiyapiev 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAIPELLAVESFLPFYI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ltfvvtisffvmlplaaitcvi---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IHFLVSVLFFLSIIAYFIAISILDKSWIAV------LLIIGHIAMWYLHFASEIPR 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             --SVAPIFNLGLAI-GGILI--VIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGW 106
                                                                                                       Similarity
                                                                                                                                                           412
                                                                                                                                                                                                                                                                                                                                                                                                                            Choi GH;
                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                           Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98US-0098964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99WO-US19726
                                                                                                                                                                                                                                                                                                                                                                                     Z51240.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Protein;
                                                                                                       9.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 412
                                                                                          30;
                                                                                                       Score 87; DB 21; Pred. No. 0.063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (168339_1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  wptvqhgigsmqhfiiasgyigvwlyhflerv--
                                                                                         Mismatches
             ----FLSIIAYFIAISILDKSWIAVL
                                                                                       30;
:: =:
                                                                                                                   Length 412;
                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -emvgvfq----g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            infection;
                                                                                          36;
                                                                                         Gaps
               137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     145
                                                                                         ŝ
```

```
В
  밁
                          δÃ
                                                                               Qγ
                                                                                                              밁
                                                                                                                                       δÃ
                                                                                                                                                                                                                                            X P X P P X P P R X P X P R R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 12
W98458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                 This sequence represents a Helicobacter pylori GHPO protein of the invention. The polypeptides can be used for preventing or treating Helicobacter infections, and gastroduodenal diseases associated with these infections, including acute, chronic, and atrophic gastritis, and peptic ulcer diseases, e.g. gastric and duodenal ulcers. They can also be used for the production of antibodies. The products can also be used for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-JUL-1997;
01-APR-1997;
24-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GHPO protein; Helicok peptic ulcer disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H. pylori GHPO 710 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W98458;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W98458 standard;
                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                  Claim 8; Page 805-807; 2054pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                             New isolated Helicobacter polynucleotides - used to develop products for the diagnosis, prevention and treatment of Helicobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Al-Garawi A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                for the diagnosis, prevention and treatm infections and gastrointestinal diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HUMA-) HUMAN GENOME SCI INC.
(INMR) MERIEUX ORAVAX PASTEUR MERIEUX SERUMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9843478-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Helicobacter pylori
                             113
                                                      107 aifvilsftkfrswvmrsipsdlrravsagigafiafiglke-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               393 1 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        138 L 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   333 faewgilfgalfiifmlyllfelfrfnisgknvtaivvmltmliyfltvsfnnsryvafi 392
162 lgdfgdphvllgvvgiiltfalytlkirgsfiiavlitsilawvlklapypseffsmpas
                                                                                                                49
                                                                                                                                          22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-542293/46.
DB; X14177.
                            ------VLFFLSIIAYFIAISILDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPEL
                                                                                  ILIVIVGLRNLYSW-----SRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVS-----
                                                                                                                                          LTMIALAISMSSWFN-IWNNALSDLGHAVKSSVAPIFNLGL------AIGG 65
                                                                                                             lsataiitilssvfnglwan--tpiamsvglglsayfsfglvgglklpwqsalgivalsg
                                                                                                                                                                                                                                                                        and.
                                                                                                                                                                                                                                            435 AA;
                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                      diagnosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kleanthous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Helicobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97US-0902615.
97US-0833457.
97US-0881227.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US06371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
                                                                                                                                                                                 9.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          435
                                                                                                                                                                        39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        infection; gastroduodenal disease;
                                                                                                                                                                                  Score 87; DB 19; Pred. No. 0.067;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Miller
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                            treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0omen
                                                                                                                                                                        73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RP,
                                                                                                                                                                                                 Length 435
                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tomb
                                                        -mhivvthxatlvt 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J,
                                                                                                                                                                        68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gastritis;
                                                                                                                                                                     Gaps
                                                                                                              106
                                                                                    112
                                                                                                                                                                                                                                                                                               be
                                                                                                                                                                     7;
```

PPR	B 8
11461 s 314661 s 314661 s 314661 s 314661; 17 - OCT - 2 Arabidop Protein Prote	164 LAVFSF : : 222 igpiafql
Protein; 214 # Protein; 214 # iana protein fi iana protein fi cation; signal cation; sign	LAVESF
SEQ ID NO: 146 uction pathway; gene expressio	-LPFYIRDYFKS 180 : :: !itffytdlfds 261
metabolic pathway; n control; promoter;	
ייטיסיטיסיטיסיטיטיטיסיטיסיסיסיסיסיסיסיטיסיטיטיטיטיטיטיטיטיטיטיטיטיטיטיסיטיטיטיטיטיסיסיטיטיסיטיסיסיסיטיטיטיטיטיט א א א א א א א א א א א א א א א א א א א	פק אק אק אק
	18-JUN-1999 18-JUN-1999 18-JUN-1999 18-JUN-1999
	3066 3066 3066
\$\\\0139450 \\0139450 \\0139460 \\0139463 \\0139463 \\0139463 \\01014033763 \\01014033763 \\01014033763 \\01014033763 \\0101403353 \\010142330 \\01014230 \\01	139454 139455 139456 139457

٧,

159 161

```
16-AUG-1999
117-AUG-1999
120-AUG-1999
20-AUG-1999
21-AUG-1999
22-AUG-1999
23-AUG-1999
23-AUG-1999
24-AUG-1999
27-AUG-1999
28-EP-1999
28-EP-1999
29-SEP-1999
20-SUP-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
28-CCT-1999
28-CCT-1999
29-CCT-1999
21-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
28-CCT-1999
28-CCT-1999
29-CCT-1999
 yssa-----vailgfslilailrtfdirveaarvmvsapilafvtthilyinfykldyg 116
                                     SSVAPIFNLGLAIGGILIVIVGLRNL---YSWSRVKGSLIISMGVFLNL--IGVFDEVYG
                                                                 HSWMDMIIFILSFSFPLTMIALA------ISMSSWF--NIWNNALSDLGHAVK
                                                                                                                                               18; Conserv
                                                                                                                                             9.2%;
nilarity 23.9%;
Conservative 3
                                                                                                                                                                                                                  99US-014936

99US-0149175

99US-0149723

99US-0149920

99US-0151065

99US-0151066

99US-0151066

99US-0151066

99US-0151060

99US-0151060

99US-0151060

99US-0151075

99US-0154039

99US-0154039

99US-0154039

99US-0154039

99US-0155659

99US-0156596

99US-0156596

99US-0156596

99US-0156771

99US-0156768

99US-0156768

99US-0156767

99US-0156869

99US-01569637

99US-01569637

99US-01569637

99US-01569637

99US-01569637

99US-01569637

99US-01569637

99US-0160768

99US-0160768

99US-0160768

99US-0160989

99US-0161404

99US-0161406

99US-0161406
                                                                                                                                               34;
                                                                                                                                             Score 86.5; DB
Pred. No. 0.031;
4; Mismatches
                                                                                                                                                                               21;
                                                                                                                                               68;
                                                                                                                                               Indels
                                                                                                                                                                               Length
                                                                                                                                                                               214;
                                                                                                                                               51;
                                                                                                                                             Gaps
                                     105
                                                                        62
                                                                                                            50
                                                                                                                                               11;
 GREEN 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
16-APR 1999
11-APR 1999
21-APR 1999
23-APR 1999
23-APR 1999
28-APR 1999
30-APR 1999
30-APR 1999
06-MAY 1999
06-MAY 1999
07-MAY 1999
11-MAY 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-FEB-1999
05-MAR-1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
29-MAR-1999
01-APR-1999
06-APR-1999
08-APR-1999
16-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein identification; signal transduction pathway; metabolic hybridisation assay; genetic mapping; gene expression control; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EP1033405-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   G36489;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     G36489 standard; Protein; 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               162 ELLAVFSFLPFYIRDYFKSYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                thaliana protein fragment SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000EP-0301439
9905-0121825

9905-0123548

9905-0125788

9905-0126785

9905-0126785

9905-012834

9905-012834

9905-0129845

9905-0130510

9905-013049

9905-013149

9905-013248

9905-013248

9905-013248

9905-013248

9905-013248

9905-013248

9905-013248

9905-013248

9905-013248

9905-013421

9905-013421

9905-013421

9905-013421

9905-013421

9905-013421

9905-0135124

9905-0135124

9905-0135124

9905-0135124

9905-013523

9905-013523

9905-013523

9905-013523

9905-013523

9905-013523

9905-013523

9905-013523

9905-013523

9905-013523

9905-0137528

9905-0137528

9905-0137528

9905-0137528

9905-0137528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44725
```

pathway;
promoter;

В δÃ В Ş

51 3

Query Match Best Local S Matches 48

σ

```
Ş
                                                Query Match
Best Local S
Matches 30
                                              11-AUG-1999
11-AUG-1999
12-AUG-1999
13-AUG-1999
13-AUG-1999
14-AUG-1999
14-AUG-1999
20-AUG-1999
20-AUG-1999
22-AUG-1999
23-AUG-1999
24-AUG-1999
27-AUG-1999
28-SEP-1999
29-SEP-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
28-CCT-1999
29-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
27-CCT-1999
28-CCT-1999
24 MIALAISMSW------
                   ch 9.2%;
1 Similarity 21.6%;
30; Conservative
                                              9908-0148171
9908-0148341
9908-0148565
9908-0148564
9908-0149368
9908-0149723
9908-0149723
9908-0150866
9908-0151065
9908-0151065
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-0151080
9908-016081
9908-016081
9908-016081
9908-016081
-FNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRNLY
                   ; Score 86.5; DB; Pred. No. 0.068; 32; Mismatches
                     56;
                                Length
                     Indels
                                  397;
                     21;
                     Gaps
                     5
```

מת קרם להתיקים להת

10-JUN-1999
16-JUN-1999
16-JUN-1999
16-JUN-1999
18-JUN-1999
19-JUL-1999
19-JUL

\$\text{\$\

S-013847.
S-0139453.
S-0139454.
S-0139454.
S-0139454.
S-0139459.
S-0139459.
S-0139459.
S-0139461.
S-0139461.
S-0139462.
S-0139462.
S-014991.
S-0140823.
S-01410891.
S-0142803.
S

```
γ
                                                         g
                                                                                   Ş
                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 15
Y35302
                                                                                                                  Matches
                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                            Y34584-Y35879 represent the proteins encoded by all the open reading frames in the complete genome (see X91990) of Chlamydia pneumoniae.

C. pneumoniae causes respiratory disease such as pneumonia and bronchitis and is thought to be a contributing factor in heart disease, sarcoidosis, sinusitis, purulent otitis media, crythema nodosum or pharyngitis. The polypeptides encoded by the open reading frames of the C. pneumoniae genome (see Y3484-Y33879) can be used in immunogenic compositions as vaccines. Vectors containing C. pneumoniae nucleotides sequences can also be used as immunogenic compositions, especially where the vector directs the expression of a neutralising epitope of C. pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                Genome sequence of Chlamydia pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Griffais R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chlamydia pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Respiratory disease; pneumonia; bronchitis; heart disease; sarcoidosis; sinusitis; purulent otitis media; erythema nodosum; pharyngitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Y35302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Y35302 standard; Protein; 428
                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                    Page 1119; Disclosure; 1912pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1999-357842/30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-NOV-1998;
21-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-JUN-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9927105-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Amino acid sequence of a Chlamydia pneumoniae protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GEST ) GENSET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   vaccine; neutralising epitope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161 krpkisgaglaailplavvhtlgnlftnmslgkvsvsfthtikamepffsvllsamflge 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              105 vlelgllfamwylfniyfniynkqvlkalhapmtvtlvqf----avgsvlitimwvlnly 160
                 54 -APIFN-----LGLAIGGIL---IVIVGLRNLYSWSRVKG--SLIISMGVFLNLIGVFD 101
47 laalfeffgalllgdrvagtiessivsvtnpmlasgdymygmtaallatgvwlqlasff- 105
                                                      SWSRVKG---SLIISMGVFLNLIGVFDEV-----YGWIHFLVSVLFFLSIIAYFIAISI 128
                                                                                                                  48;
                                                                                                                                                                                       428
                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98US-0107078.
97FR-0014673.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98WO-IB01890
                                                                                                                                9.1%;
                                                                                                                  30;
                                                         --lcgfytswnigandvanavgpsvgsgvltlrgavv 46
                                                                                                               Score 86; DB 20;
Pred. No. 0.086;
0; Mismatches 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                  56;
                                                                                                                                           Length 428;
                                                                                                                 Indels
                                                                                                                 74;
                                                                                                               Gaps
                                                                                     53
                                                                                                                 11;
```

Search completed: May 30, 2001, 15:23:49 Job time: 99 sec

•					
					**
		•			,
			. •		
				ås H	
	,	•			
			•		

4, Appli 4, Appli 2, Appli 2, Appli 2, Appli 4, Appli 4, Appli 4, Appli 2, Appli 2, Appli 27, Appli 29, Appli

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                    Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein -
     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                  86
86
84.5
84.5
78.5
78.7
77
77
77
77
77
76.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Issued_Patents_AA:*

1: /cgn2_6/ptodata/2,

2: /cgn2_6/ptodata/2,

3: /cgn2_6/ptodata/2,

4: /cgn2_6/ptodata/2,

5: /cgn2_6/ptodata/2,

6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                                                                                    Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hits satisfying chosen parameters:
   US-09-382-242-33
942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185757 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                мау
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSLNKHSWMDMIIFILSESE.....AVFSFLPFYIRDYFKSYTKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/Backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30, 2001, 15:22:30 ; Search time 11.2 Seconds (without alignments) 315.607 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                     Length
   GenCore version 4.5 (c) 1993 - 2000 Com
                                                                                                                                                                                                                                                                                                                                                     DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19210857 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapext 0.5
 US-08-602-359A-33
US-08-597-236-13
US-08-549-515-7
US-08-08-141-2
US-08-08-18-270-20
US-08-118-270-20
US-08-18-270-20
US-08-19-25-480-7
US-09-097-759-3
US-09-097-759-3
US-08-18-270-19
US-08-20-000A-5
US-08-390-000A-5
US-08-390-000A-5
US-08-446-69-8
PCT-US95-00476-8
US-08-446-39-28-2
US-08-463-99-3-2
US-08-463-99-3-2
US-08-463-99-3-2
US-08-463-99-3-2
US-08-463-99-3-2
US-08-463-99-3-2
US-08-463-99-3-2
US-08-463-99-3-2
US-08-463-99-3-2
                                                                                                                                                                                                                                                                                                                                                    IJ
                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185757
Sequence 33, Appl
Sequence 13, Appli
Sequence 13, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 20, Appli
Sequence 20, Appli
Sequence 20, Appli
Sequence 21, Appli
Sequence 3, Appli
Sequence 4, Appli
Sequence 5, Appli
Sequence 19, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 8, Appli
Sequence 9, Appli
Sequence 2, Appli
                                                                                                                                                                                                                                                                                                                                                    Description
```

FILING DATE: ATTORNEY/AGENT INFORMATION: NAME: HAILE, LISA A. REGISTRATION NUMBER: 38,347 REGISTRATION NUMBER: 09010/010001 TELECOMMUNICATION INFORMATION: TELEPHONE: 619-678-5070 TELEFAX: 619-678-5099 INFORMATION FOR SEQ ID NO: 33: SEQUENCE CHARACTERISTICS: LENGTH: 184 AMINO ACIDS TYPE: AMINO ACIDS TYPE: AMINO ACIDS MOLECULE TYPE: PROTEIN US-08-602-359A-33	CA TYP TYP TYP TYP TIO TIO DAT	Application US/086023 42430 RMATION: ROBERTSON, Daniel E MURCHY, Dennis REID, John MAFFIA, Anthony LINK, Steven SWANSON, Ronald V. WARREN, Patrick	28 75 8.0 1531 2 US-08-462-109A-4 29 75 8.0 1531 2 US-08-460-907B-2 30 75 8.0 1531 2 US-08-460-907B-4 31 75 8.0 1531 3 US-08-461-907B-4 32 75 8.0 1531 3 US-08-461-384B-2 33 75 8.0 1531 3 US-08-461-384B-4 34 75 8.0 1531 3 US-08-461-384B-4 35 75 8.0 1531 3 US-08-407-207A-2 36 74 7.9 458 1 US-08-310-271-2 37 74 7.9 458 3 US-09-292-071-27 38 74 7.9 458 3 US-09-292-071-27 40 74 7.9 458 4 US-09-292-069A-27 41 74 7.9 458 4 US-09-292-069A-27 42 73.5 7.8 652 1 US-08-637-833-32 43 73.5 7.8 652 1 US-08-582-719-2 44 73 7.7 1090 3 US-08-307-896-3 45 73 7.7 1090 3 US-08-307-896-3
			Sequence

```
밁
                            οy
                                                                                     Q
                                                                                                                                                                                                  ; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-597-236-13
                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 2
US-08-597-236-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                         Matches
                                                                                                                                  Query Match 9.1%; Score 86; DB 1; Length 473 Best Local Similarity 24.5%; Pred. No. 0.36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 13, Application US/08597236 Patent No. 5733765 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: EP 9:
FILING DATE: 20-JUN-1995
ATTORNEY/AGENT INFORMATION:
NAME: Fanucci A., Allan
                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 473 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: STINGELE, Fr
APPLICANT: MOLLET, Beat
 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 YTKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 YTKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50 KS-SVAPIFNLGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIH 108
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: FILING DATE: CLASSIFICATION: 426
                                                                                                                                                                                                                                        TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                 OPERATING SYSTEM: PC-DOS/MS-DUS
SOFTWARE: PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                      NAME: Fanucci A., Allan REGISTRATION NUMBER: 30256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 SLNKHSWMDMIIFILSFSFPLT----MIALAISMSS-W-----FNIWNNALSDLGHAV 49
                                                          SMTKESVLTNSLVVWCFSAVFTCLGACIIYALNLSNKWYLALLLTFNLFQGGQSILSQYA 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AYFIAISILDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYIRDYFKS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AYFIAISILDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYIRDYFKS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1155 Avenue of the Americans
                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pennie & Edmonds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EXOPOLYSACCHARIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 942; DB 2; 100.0%; Pred. No. 3.5e-89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LACTIC BACTERIA PRODUCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Franscesca
                                                                                                                                                                                                                                                                                                                                                                      EP 95201669.9
                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/597,236
                                                                                                                     36; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
----LTGALNILFLVYLPL----GITGYLM 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Version #1.30
                                                                                                                    74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 184;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                     50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                       11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                          Š
```

```
дЬ
                                                                                                        Š
                                                                                                                                                  В
                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29
                                                                                                                                                                                                                                                                                                                                                                                                          US-08-746-682A-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-746-682A-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 13, Application US/08746682A Patent No. 5786184
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIA Release #1.0, Vers
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/746,682A
                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Fanucci A., Allan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Pennie &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: STINGELE, Franches APPLICANT: MOLLET, Beat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
                        154 --IPRGAAIPELLAVFSFLPFYIRDYFKSYTK 183
234 VLFFLGAGANGLLAVATKIPSIISIFNTIFTQ 265
                                                                        174 SLVLANVGTILFFAGTLSIWKEISFKIIDKKLIWQMLYYALPLIPSSILWWLLNASSRYF 233
                                                                                                                                                  134 RGIGKSKIF----AAGGVILTF------LTGALNILFLVYLPL-----GITGYLM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      174 SLVLANVGTILFFAGTLSIWKEISFKIIDKKLIWQMLYYALPLIPSSILWWLLNASSRYF 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                154 -- IPRGAAIPELLAVFSFLPFYIRDYFKSYTK 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              234 VLFFLGAGANGLLAVATKIPSIISIFNTIFTQ 265
                                                                                                                                                                                         50
                                                                                                                                                                                                                               74
                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 20-JUI
APPLICATION NUMBER:
FILING DATE: 20-JUI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: UZIP: 10036
                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 14-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                   2 SLNKHSWMDMIIFILSFSFPLT----MIALAISMSS-W----FNIWNNALSDLGHAV 49
                                                                                                            FLV-----SVLFFLSIIAYF--IAISILDKSWI-----AVLLIIGHIAMWYLHFASE-- 153
                                                                                                                                                                                         KS-SVAPIFNLGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIH 108
                                                                                                                                                                                                                               SMTKESVLTNSLVVWCFSAVFTCLGACIIYALNLSNKWYLALLLTFNLFQGGQSILSQYA 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FLV-----SVLFFLSIIAYF--IAISILDKSWI-----AVLLIIGHIAMWYLHFASE--
                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1155 Avenue of the Americans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              473 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            U.S.A.
                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20-JUN-1995
UMBER: EP 95201669.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-JUN-1995
                                                                                                                                                                                                                                                                                                                           9.1%; Score 86; DB 1; Length 473; 24.5%; Pred. No. 0.36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LACTIC BACTERIA PRODUCING EXOPOLYSACCHARIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08/597,236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Franscesca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30256
                                                                                                                                                                                                                                                                                                       36;
                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Version
                                                                                                                                                                                                                                                                                                       74; Indels
                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                  173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153
                                                                                                                                                                                                                                                                                                         11;
```

```
망
                                                                                                                                                                                                                                                                                                                                                                                                               γO
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: US-08-549-515-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-549-515-7
                                                                                                                                   US-08-098-141-2
                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 42
                                                                                          Sequence 2, Application US/08098141 Patent No. 5441875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 7, Applic Patent No. 6054123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                  GENERAL INFORMATION:
APPLICANT: Heddiger Ph.D., Matthias A.
TITLE OF INVENTION: Urea Transporter Polypeptide
NUMBER OF SEQUENCES: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (416) 595-1155
TELEFAX: (416) 595-1163
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 24,973
REFERENCE/DOCKET NUMBER: 10
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: Haemophilus Influenzae
TITLE OF INVENTION: Dimethylsulphoxide Reductase Enzyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Stewart, Michael I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES:
                                                                                                                                                                                                                 209 SAIQNAADLVPNYAIMTVTRLCLLSIVAFLLFRVKN 244
                                                                                                                                                                                                                                                      150 FASE-----IPRGAAIPE----LLAVFSFLPFYIRD 176
                                                                                                                                                                                                                                                                                                                                     111 VSVLFFLSIIAYFIAIS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: FILING DATE: 27-OCCCLASSIFICATION: 53
                                                                                                                                                                                                                                                                                                                                                                            92
                                                                                                                                                                                                                                                                                                                                                                                                                   66
                                                                                                                                                                                                                                                                                                                                                                                                                                                        44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSWMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGG 65
                                                                                                                                                                                                                                                                                           TSWSFYLTVVLGGLTLSYALLIPNKQREYQLQHLPSLFAIGVSLVAIVAIYQGFNLHNIH 208
                                                                                                                                                                                                                                                                                                                                                                            IFFTLAG---FYWLIAILGKMPVSLGNVWRIVTALIGILFMYVMNQVYHITSIPTWNNAL 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                        HKVMFVILALLGIGFIASIMHLGLPIRAF----NSLNRVGSSMMSN-----EIAAGA 91
                                                                                                                                                                                                                                                                                                                                                                                                                 ILIVIVGLRNLYSWSRVKGSLIISMG----VFLNLIG-----VFDEVY-----GWIHFL 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RY: Canada
M5G 1R7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Toronto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/08549515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Stewart, Michael I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ontario
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 279 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Suite 701, 330 Unviersity Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Klein, Michel H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sim & McBurney
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-OCT-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.0%; Score 85; DB 3; Length 279
19.4%; Pred. No. 0.24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/549,515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24,973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1038-522
                                                                                                                                                                                                                                                                                                                                     -----ILDKSWIAVLLIIGHIAMWYLH 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 47; Conserv?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; MOLECULE TYPE: protein US-08-098-141-2
                                                                                                                                                                                                                                                                                                                                                           US-09-046-086-2
                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/09046086 Patent No. 6127147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 397 amino acid
TYPE: amino acid
                                                                    ZIP: 19103-2793
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Kaplan Esq., Warren A.
REGISTRATION NUMBER: 34,199
REFERENCE/DOCKET NUMBER: 092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 19930723
                                                                                                                                                                                                NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS: Dechart, Price & Rhoads
                                                                                                                                                                                                                                                           APPLICANT: Wallis, TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       141 G--HIAMWYLH---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                106 -WIHFLVSVLFFL------SIIAYFIAISILD-------KSWIAVLLII 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                144 WLLLPVIVMSMSCPILSSALGTIFSKW------DL------PVFTLPFNIAVTL 185
                                                                                                                                                                                                                                                                                                                                                                                                                                    298 GMFYVITWQTHLLAVACALFAAYV--GAALTNVLSVFGLPTCTWPFCI 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            238 PWTGGIFLIALFISSPLICLHAAIGSTMGMLAALTIATPFDSIYFGLCGFNSTLACIAVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     186 YLAATGHYNLFFPTTLLQPVSSVPNITWSEIQVPLLLRAIPVGI------GQVYGCDN 237
           COMPUTER: IBM Compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC OPERATING SYSTEM: SOFTWARE: Patentl
                                                                                                                                                         STREET: 4000 berr .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        68 -IVIVGLRNLY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: U.ZIP: 02119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Choate, Hall & Stewart STREET: Exchange Place, 53 State Street
                                                                                                                             COUNTRY:
                                                                                                                                                   STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 WMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGIL 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MA
                                                                                                                                                 PΑ
                                                                                                                                                                                    4000 Bell Atlantic Tower, 1717 Arch Stre
                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  : 617:227-5020
617:227-7566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM PC compatible SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                           Nicola G.
No. 6127147el Compounds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.0%; Score 84.5; DB 20.6%; Pred. No. 0.42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/08/098,141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -FASEIPRGAAIPELLAVFSF----LPFYI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           092662-001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----SWSRVKGSLI---ISMGVFLNLIGVFDEVYG--- 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            297
```

13;

APPLICATION NUMBER: FILING DATE: CLASSIFICATION:

US/09/046,086

```
ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 7
US-08-118-270-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        atent No.
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                     APPLICATION NUMBER: FILING DATE: 09-SEP-PRIOR APPLICATION DATA: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Falk, Stephen T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                   TELEPHONE: 202-628-5197
                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION: TELEPHONE: 215-994-2488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ITTLE OF INVENTION: POLYPEPTIDES OF G-COUPLED PROTEIN
TITLE OF INVENTION: RECEPTORS, AND COMPOSITIONS AND METHODS THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          135 AVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYIRDYFKSYTKR 184
                                                                                                                                                                                                                                                                                                                                               COUNTRY: US
ZIP: 20004
                   TELEPHONE: 202-0-3528
                                                                 REFERENCE/DOCKET NUMBER: MUI
                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64 YILLIIHYFIICYFVFSVH-----PMLSLFFFYSAFAVPFTFKNNVKK 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82 VKGSLIISMGVFLNLI----GV-FDEVYG--WIHFLVSVLFFLSIIAYFIAISILDKSWI 134
                                                                                                   NAME: Townsend, Kevin REGISTRATION NUMBER: (
                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid
STRANDEDNESS: si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REGISTRATION NUMBER: 36 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 LKDTSTAEISSILYLIFPIAGIFFNEVYGPKWLYIISVIVFSLSYLILVIVNNRLNTLMF 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30;
                                                                                                                                                                                                                                                                                                                                                                                               Washington
                                                                                                                                                                                                                                                                                                                                                                               D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/08118270
                                                                                                                                                                                                                                                                                                                                                                                                               E: BROWDY AND NEIMARK
419 Seventh Street, N.W., Suite 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363 amino acids
                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Murphy, Randall B. Schuster, David I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         215-994-2227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                     UMBER: US 07/943,236
10-SEP-1992
                                                                                                                                                                                                         09-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-APR-199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.9%;
27.3%;
                                                                                                                                                                                                                         US/08/118,270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/043,489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21;
                                                                                     MURPHY-2A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GM50025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 84; DB 4
Pred. No. 0.42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 4; Length 363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; MOLECULE TYPE: peptide US-08-118-270-20
멍
                                                                                                                                           CT-US93-08528-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PCT-US93-08528-20
                                                              Matches
                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 20, Applicat
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 330 amino acid
                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: MITTELECOMMUNICATION INFORMATION TELEPHONE: 202-628-5197
                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 09-SEP-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/943,236
FILING DATE: 10-SEP-1992
ATTORNEY/ACENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Rel
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 330 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25 IALAISMSSWENIWNNALSDLGHAVKSSV-AP--IFNLGLAIGGILIVIVGLRNLYSWSR 81
                              25 IALAISMSSWFNIWNNALSDLGHAVKSSV-AP--IFNLGLAIGGILIVIVGLRNLYSWSR 81
                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51 --ATLIIPFSLANELLGYWYFRRTWCEVYLALDVLFCTSSIVHLCAIS-LDRYW 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82 VKGSLIISMGVFLNLIG--VFDEVYGWIHFLVSVLFFLSIIAYFIAISILDKSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                        TELEFAX:
                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4 IAAAITFLILFTIFGNALVIIAVLTSRSLRAPQNLFLVSIAAADILV------
4 IAAAITELILETIEGNALVIIAVLTSRSLRAPQNLELVSIAAADILV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Washington
                                                                                                                                                                                                       amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                       Townsend, Kevin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application PC/TUS9308528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: BROWDY AND NEIMARK
419 Seventh Street, N.W., Suite 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          330 amino acids
                                                                                                                                                                                                                                                                                          202-737-3528
                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New York University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                             linear
                                                                                                                                                          peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                        JMBER: PCT/US93/08528
09-SEP-1993
                                                                                                                                                                                          single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        single
                                                                           8.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POLYPEPTIDES OF G-COUPLED PROTEIN RECEPTORS, AND COMPOSITIONS AND M
                                                                                                                                                                                                                                                                                                                                                      34,033
                                                              17; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17;
                                                                                                                                                                                                                                                                                                                                           MURPHY=2 PCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 78.5;
Pred. No. 1
                                                                           Score 78.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Version #1.25
                                                                                              DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                              43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43;
                                                                                          Ç.
                                                                                          Length 330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 330;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AND METHODS THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                              Indels
                                                              21;
                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               50
                                                              ű
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
```

Š

82 VKGSLIISMGVFLNLIG--VFDEVYGWIHFLVSVLFFLSIIAYFIAISILDKSW

133

```
RESULT 9
US-08-225-480-7
                                                                                                                                                                                                                                                      γQ
                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-225-480-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                          US-09-097-759-4
                                                                                           RESULT
GENERAL INFORMATION:
APPLICANT: Winterhalter Mr., Christopher
                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 7, Application US/08225480 Patent No. 5817793
                                     Sequence 4, Application US/09097759A Patent No. 5972663
                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: 7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/938,085
FILING DATE: 28-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: MULTIPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: GATES, EDWARD R.
REGISTRATION NUMBER: 31,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEPHONE: 617-720-3500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES:
                                                                                                                                                                               122 YFIAISILDKS--WIAVLLIIGH---IAMWYLHFASEI 154
                                                                                                                                                                                                                      104
                                                                                                                                                 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: U
ZIP: 02210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51
                                                                                                                                                                                                                                                                                           47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET:
                                                                                                                                                                                                                                                      76 LYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIH-------FLVSVLFFLSIIA 121
                                                                                                                                                                                                                                                                                                                             16 LSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                             FFVASLILDGSATMIHSLVTIDMTTILSLMYLAFVATI 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --ATLIIPFSLANELLGYWYFRRTWCEVYLALDVLFCTSSIVHLCAIS-LDRYW 101
                                                                                                                                                                                                                                                                                           INFGMPAGLASLVLQAQAFFTIMLGAFT-FGERLHGK--QLAGIALAIFGVLVLIEDSLN 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BOSTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E: WOLF, GREENFIELD & SACKS, P.C 600 ATLANTIC AVENUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              266 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     617-720-2441
                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LEVY, STUART B.
                                                                                                                                                                                                                    -GQHVAMLGFMLTLAAAFSWACGNIFNKKIMSHSTRPAVMSLVIWSALIPIIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                 8.2%; Score 77;
24.1%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MULTIPLE ANTIBIOTIC RESISTANCE OPERON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/225,480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31,616
                                                                                                                                                                                                                                                                                                                                                                  24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T0359/7003
                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                  66;
                                                                                                                                                                                                                                                                                                                                                                                                 Length 266;
                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                30;
                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                  6
```

```
밁
                                                                                                  Qy
                                                                                                                                               Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: Escherichia coli US-09-097-759-4
                     δÃ
                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                  ; ORGANISM: Escherichia coli
US-09-097-759-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-097-759-3
                                                                                                                                                                                                                                               Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 4
                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 3, Applic Patent No. 5972663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/097,759A
CURRENT FILING DATE: 1998-06-16
EARLIER APPLICATION NUMBER: DE 197 26 083
                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER APPLICATION NUMBER: DE 197 26 083
EARLIER FILING DATE: 1997-06-19
NUMBER OF SEQ ID NOS: 12
SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Microorganisms and Processes for the Fermentative TITLE OF INVENTION: Preparation of L-cysteine, TITLE OF INVENTION: L-cysteine, N-cacetylserine or Thiazolidine Derivatives FILE REFERENCE: Winterhalter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Microorganisms and Processes TITLE OF INVENTION: Preparation of L-cysteine, TITLE OF INVENTION: L-cysteine, N-acetylserine on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EARLIER FILING DATE: 1997-06-19 NUMBER OF SEQ ID NOS: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: Winterhalter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Winterhalter Mr., Chris APPLICANT: Leinfelder Mr., Walfred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Leinfelder Mr., Walfred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 266
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 299
156 FFVASLILDGSATMIHSLVTIDMTTILSLMYLAFVATI 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122 YFIAISILDKS--WIAVLLIIGH---IAMWYLHFASEI 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104
                                                                                                      76 LYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIH----
                                                                                                                                                                                     16 LSFSFPLTMIALAISMSSWENIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRN 75
                                                                                                                                                                                                                                Local Similarity
nes 38; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16 LSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRN 75
                                                                                                                                               80 INFGMPAGLASLVLQAQAFFTIMLGAFT-FGERLHGK--QLAGIALAIFGVLVLIEDSLN 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              76 LYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIH------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------GQHVAMLGFMLTLAAAFSWACGNIFNKKIMSHSTRPAVMSLVIWSALIPIIP 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFGMPAGLASLVLQAQAFFTIMLGAFT-FGERLHGK--QLAGIALAIFGVLVLIEDSLN 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/
FILING DATE: 1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/09097759A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                Conservative
                                                              -GQHVAMLGFMLTLAAAFSWACGNIFNKKIMSHSTRPAVMSLVIWSALIPIIP 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8.2%;
24.1%;
                                                                                                                                                                                                                            8.2%; Score 77; DB
24.1%; Pred. No. 1.7;
tive 24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/09/097,759A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 77; DB
Pred. No. 1.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                    2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or
                                                                                                                                                                                                                                66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        66;
                                                                                                                                                                                                                                                                    Length 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----FLVSVLFFLSIIA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for the Fermentative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Thiazolidine Derivatives
                                                                                                      ----FLVSVLFFLSIIA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30;
                                                                                                                                                                                                                                30;
                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
```

밁

189

FFVASLILDGSATMIHSLVTIDMTTILSLMYLAFVATI 226

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; LENGTH: 306
TYPE: PRT
; ORGANISM: Escherichia coli
US-09-097-759-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    us-09-097-759-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Sim
Matches 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 5, Application US/08423564 Patent No. 5654417 Patent No. 5654417 5654417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2
Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -08-423-564-5
                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/CURRENT FILING DATE: 1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: Preparation of L-cysteine,
TITLE OF INVENTION: L-cysteine, N-acetylserine or Thiazolidine Derivatives
FILE REFERENCE: Winterhalter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Winterhalter Mr., Chris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EARLIER FILING DATE: 1997-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENERAL INFORMATION:
                                                                SOFTWARE. CURRENT APPLICATION DATA:
CURRENT APPLICATION UNMBER: US/08/423,564
                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
ATTORNEY/AGENT INFORMATION: NAME: Broderick, Thomas
                                                                                                                                                                   COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                             STREET: 1...
CTTY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   196 FFVASLILDGSATMIHSLVTIDMTTILSLMYLAFVATI 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122 YFIAISILDKS--WIAVLLIIGH---IAMWYLHFASEI 154
                                                                                                                          COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                 PPLICANT: 'Tarr, Phillip I.

PLICANT: Bilge, Sima S.

PLICANT: Vary, Jr., James C.

TLE OF INVENTION: NUCLEIC ACID PROBES FOR DETECTING E.

MBGER OF SEQUENCES: 9
                                                        FILING DATE:
                                      CLASSIFICATION:
                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              76 LYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIH------FLVSVLFFLSIIA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16 LSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRN 75
                                                                                                                                                                                                          ZIP: 98101-2347
                                                                                                                                                                                                                                                                                                    DDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFGMPAGLASLVLQAQAFFTIMLGAFT-FGERLHGK--QLAGIALAIFGVLVLIEDSLN: 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2, Application US/09097759A
5. 5972663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INVENTION: Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                               E: Christiansen, O'Connor, Johnson, Kindness 1420 5th Ave., Suite 2800
                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                            TE: Floppy disk

IBM PC compatible

SYSTEM: PC-DOS/MS-DOS
                                                                                                             PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GOHVAMLGEMLTLAAAFSWACGNIFNKKIMSHSTRPAVMSLVIWSALIPIIP
                                                        14-APR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8.2%; Score 77; DB 24.1%; Pred. No. 1.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DE 197 26 083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/09/097,759A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and Processes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for the Fermentative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                           coli 0157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
```

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
US-08-423-564-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-902-853-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Application US/08902853 Patent No. 5945330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 43; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO:
                                               PRIOR APPLICATION DATA:
                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: Herewith
                                                                                                                                                                                            COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: HUMAN LONGEVITY-ASSURANCE PROTEIN HOMOLOGS NUMBER OF SEQUENCES: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HYPOTHETICAL: r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER: 31,332
REFERENCE/DOCKET NUMBER: CH
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170 VFS 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          166 VFS 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          113 IIKRLIKFTKVNIHAKREAPYLILNGFFFFILQLGTLATWSGDNFIISITLGVT---YVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129 LDKSWIA---
                                                                                                                                                                                                                                                          STREET: 3174 Por CITY: Palo Alto
                                APPLICATION NUMBER:
                                                              CLASSIFICATION:
                                                                                                                             COMPUTER: IBM CO
OPERATING SYSTEM:
SOFTWARE: FastSE
                                                                                                                                                                                                               COUNTRY: UZIP: 94304
                                                                                                                                                                                                                                              STATE:
                                                                                                                                                                                                                                                                            ADDRESSEE: Incyte Pharmaceuticals, Inc STREET: 3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19 SFPLTMIALAIS-MSSW----FNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGL 73
                                                                                                                                                                             MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60 QKAYI-SNIVNAIFILLSIITLVIS-----SKLHAGLPVLIVSTLGIQYISGIYLTINL 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74 RNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIH-----FLVSVLFFLSIIAYFIAISI 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DESCRIPTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 SFVITAICYITSGMIDWQLVIKGINENVYAELQHSIKVFVI-IFGLGIYSNGVQKVYMGI 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DESCRIPTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    amino acid
                                                                                                                                                                                                                                               CA
                                                                                                                                                                                                                                                                                                                                                                          HIllman, Jennifo
Corley, Neil C.
Shah, Purvi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   341 amino acids
                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                               FastSEQ for Windows Version 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Escherichia coli
                                                                                                                                                            IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                               Diskette
                                                                            Herewith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     206)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acids encoded by nucleotides 1-1026 of SEQ ID NO:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                            Preeti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    224-0779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    682-8100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8.2%;
23.5%;
                                                                                                                                                                                                                                                                                                                                                                                                            Jenniter L.
                                                                                               US/08/902,853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31,332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CHOR-1-8116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 77;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --VLLIIGHIAMWY-LHFASEIPRGAAIPELLA 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

9

NAME: Billings, Lucy REGISTRATION NUMBER:

Billings, Lucy J.

36,749

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 15
US-08-194-338-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-902-853-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 4, Application US/08194338 Patent No. 5474898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: 1
APPLICANT: 1
FILING DATE: 28-MAR-1991
ATTORNEY/AGENT INFORMATION:
NAME: Israelsen, Ned A.
REGISTRATION UMBER: 29,655
REFERENCE PORTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: PF
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-855-0555
                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION NUMBER: 1
                                                                                                                                                                        SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: line
IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182 TKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                235 VL-LLHDSSDYLLEACKMVNYMQYQQVCDALFLIFSFVFFYTRLVLFPTQILYTTYYESI 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   144 AMWYLHFASEIPRGA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180 ---YWW--YLLELGFYLSLLIRLPFDVKRKDFKEQVIHHFVAVILMTFSYSANLLRIGSL 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        101 DEVYGWIHFLVSVLFFLS-------IIAYFIAISILDKSWIAVLLIIGHI 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           141 LFYLSSFVGGLSV-----LYHESWLWAPVMCWDRYPNQTLKPSL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDII.
LIBRARY: LI
CNE: 2516821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             294 SNR 296
                                                                                                                                         APPLICATION NUMBER: US/08/194,338 FILING DATE: 08-FEB-1994
                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                STREET: 620 Newport CITY: Newport Beach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56 IFNLGLAIGGILIVIVGLRNLY-----SWSR-----VKGSLIISMGVFLNLIGVF 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity 21.9
mes 40; Conservative
                                                                                                                                                                                                                                                                                    COUNTRY: U:
ZIP: 92660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX:
REFERENCE/DOCKET NUMBER: NIH101.001DV1
                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                     CA
                                                                                                                                                                                                                                                                                                                                                    3: Knobbe, Martens, olson and Bear 620 Newport Center Drive, Sixteenth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                           Venter, John C.
Fraser, Claire M.
McCombie, William R.
NVENTION: OCTOPAMINE RECEPTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               394 amino acids
                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       415-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIVRTUT04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                              Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.1%; Score 76.5; D
21.9%; Pred. No. 2.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF-0345 US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---AIPELLAVFSFLPFYIR-------DYFKSY 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2; Length 394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               37; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9;
```

```
ρy
                                                         Вþ
                                                                                    δõ
                                                                                                                  В
                                                                                                                                            Q
                                                                                                                                                                                                                                                     US-08-194-338-4
                                                                                                                                                                            Query Match
Best Local S
Matches 33
                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                              MOLECULL NO TENSE: NO
                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 461 amino acids
                                                                                                                                                                                                                                                                   ANTI-SENSE: NO FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                             TELECOMMUNICATION INFORMATION:
186 PLVSLYRQPDGAAYPQ 201
                  147 YLHFASEIPRGAAIPE 162
                                                          127 YLALDVLFCTSSIVHLCAIS-LDRYWSVTGAVEYNLKRTPRRVKATIVAVWIISAVISFP 185
                                                                                    108 HFLVSVLFFLSIIAYFIAISILDKSW-----
                                                                                                                  67 VGNVLVVIAVLTSRALRAPQNLFLVSLASADILVATLVMPFSLANELMAYWYFGQVWCGV 126
                                                                                                                                               63 IGGILIVIVGL-----RNLYSWSRVKGSLII-----SMGVFLNLIGVFDEVYGWI 107
                                                                                                                                                                            Local Similarity
mes 33; Conserv
                                                                                                                                                                                                                                                                                                                                       TYPE: amino acid
STRANDEDNESS: sir
                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                ELEPHONE:
                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                  (619)
                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                          . protein
                                                                                                                                                                                                                                                                                                                                                                                                                                  (619)
                                                                                                                                                                                                                                                                   internal
                                                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                                                                                                  235-0176
                                                                                                                                                                                         8.1%; Score 76.5;
24.3%; Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                     4..
                                                                                                                                                                            20;
                                                                                                                                                                            Mismatches
                                                                                                                                                                                                          DB 1; Length 461;
                                                                                      -----IAVLLIIGHIAMW 146
                                                                                                                                                                            37;
                                                                                                                                                                           Gaps
```

4

Search completed: May 30, 2001, 15:24:03 Job time: 93 sec

Run OM protein - protein search, using sw model Scoring table: Title: Perfect score: BLOSUM62 Gapop 10.0 , Gapext 0.5 US-09-382-242-33 942 May 30, 2001, 15:22:50; Search time 14.23 Seconds (without alignments) 888.617 Million cell GenCore version Copyright (c) 1993 - 2000 MSLNKHSWMDMIIFILSFSF.... 4.5 Compugen LtdAVFSFLPFYIRDYFKSYTKR 184 Million cell updates/sec

Minimum DB Maximum DB seq length: 0 length: 2000000000

Total number of hits satisfying chosen parameters:

198801

198801 segs, 68722935 residues

Searched:

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

pir1:*
pir2:*
pir3:* pir4:

Database :

PIR_67:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	٥.	4	ω	2	1	NO.	Result
91	91	91	91.5	92	92.5	93	93	93.5	93.5	94	94	95	96	96.5	97	97.5	97.5		100.5	103.5	104.5	105.5	118	126.5	129.5	142	144.5	163.5	score)
9.7	9.7	9.7		9.8	•	9.9		9.9		10.0	10.0	10.1	10.2	10.2	10.3	10.4	10.4	10.5	10.7	11.0	11.1	11.2	12.5	13.4	13.7	15.1	15.3	17.4	Match I	Query
643	435	313	452	407	303	487	383	870	460	510	394	1321	419	485	144	360	280	360	404	600	373	401	165	156	183	192	156	175	Length 1	
ν	N	N	N	N	N	2	2	ν	N	ν	Ν	N	N	N	N	N	N	N	٢	N	2	N	N	N	N	N	N	2	<u> </u>	j
E69373	в71850	T11272	н71706	E70309	E69585	E70480	S53379	T25338	C71884	E71695	S48522	A60165	в69819	н82822	S26026	C82445	A71694	E82442	LABECA	A82043	B75542	G82210	G72486	A75149	B71040	G71450	A71189	D75214		1
conserved hypothet		dehydrog		hypothetical prote	sugar transport am	probable sodium/pr	probable membrane			hypothetical prote	cell division cont	sodium channel pro	conserved hypothet	NADH-ubiquinone ox	NADH dehydrogenase	hypothetical prote	hypothetical prote	probable peptide A	latent membrane pr	inner membrane cop	conserved hypothet	м	_	•	_	•	_	hypothetical prote	Description	

45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30
88.5	89	89	89	89	89	89.5	89.5	89.5	89.5	89.5	89.5	90	90	90.5	90.5
9.4	9.4	9.4	9.4	9.4	9.4	9.5	9.5	9.5	9.5	9.5	9.5	9.6	9.6	9.6	9.6
294	404	277	253	243	226	587	485	461	442	258	234	381	274	532	442
N	N	ν	N	2	N	N	N	1	Ŋ	N	N	N	N	2	2
T29272	H83249	B64329	C82517	S73698	A42622	S65307	A72006	E64630	F71930	E72319	B83807	S24611	S42170	S66087	A64582
						,									
hypot	sodiu	hypot	conse	hypot	H+-tr	proba	argin	virul	probal	flage	hypot	laten	NADH	amino	sodiu
othetical prote	m/glutamate	/pothetical prote	nserved hypothe	ypothetical prote	+-transporting A	probable membrane	arginine/ornithine	irulence factor m	robable transpor	lagellar biosynt	pothetical prote	atent membrane p	ADH dehydrogenas	ino acid transpo	sodium- and chlor

ALIGNMENTS

RESULT D75214

hypothetical protein PAB0162 - Pyrococcus abyssi (strain Orsay)
C;Species: Pyrococcus abyssi
C;Date: 20-Aug-1999 *sequence_revision 20-Aug-1999 *text_change 20-Jun-2000
C;Date: 20-Aug-1991 *sequence_revision 20-Aug-1999 *text_change 20-Jun-2000
C;Accession: D75214

R;anonymous, Genoscope submitted to the EMBL Data Library, July 1999 A;Description: Pyrococcus abyssi genome sequence: insights into archaeal chromosome A;Reference number: A75001

A; Status: preliminary A; Accession: D75214

A; Molecule type: DNA A; Residues: 1-175 < KAW>

A;Cross-references: GB:AJ248283; GB:AL096836; NID:g5457433; PIDN:CAB49163.1; PID:g545 A;Experimental source: strain Orsay C:Genetics: A;Gene: PAB0162 C;Superfamily: Pyrococcus abyssi hypothetical protein PAB0162

밁 Qy 밁 Qy Вb QY Matches Query Match
Best Local Similarity 128 FLGLAVFCVSLPLALFSLKAFSGVAVAETVSILAFLIF 165 136 VL-LIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPF 172 24 MIALA-----ISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRNLY 77 69 KSKNPGWAIYVVGSVFLVLIGVFPEGTEW-HYEVSWGFFVSMFAAMLIISISILKKSRLG 127 10 IIALAGVVFAYLLNRDWWSITENAISDLGR-VGLPNNWVMNCGLIIGGLLLLGYGAWRLK 68 SWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSIIA--YFIAISILDKSWIA 135 55; Conservative 17.4%; 34.8%; 28; Score 163.5; DB 2; Pred. No. 8e-07; 8; Mismatches 64; Length 175; Indels 11; Gaps 5

hypothetical protein PH1785 - Pyrococcus horikoshii C;Species: Pyrococcus horikoshii C;Species: Pyrococcus horikoshii C;Date: 14-Aug-1998 #sequence_revision 14-Aug-1998 #text_change 21-Jul-2000 C;Accession: A71189

R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamoto, S.; Se M.; Ohfuku, Y.; Funahashi, T.; Tanaka, T.; Kudoh, Y.; Yamazaki, J.; Kushida, N.; Ogu DNA Res. 5, 55-76, 1998
A;Title: Complete sequence and gene organization of the genome of a hyper-thermophili A;Reference number: A71000; MUID:98344137
A;Accession: A71189

A; Status: preliminary; nucleic acid sequence not shown; translation not shown

A; Molecule type: DNA

```
hypothetical protein PH1610 - Pyrococcus horikoshii C;Species: Pyrococcus horikoshii C;Date: 14-Aug-1998 #sequence_revision 14-Aug-1998 C;Accession: B71040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Species: Pyrococcus horikoshii
C;Date: 14-Aug-1998 #sequence_revision 14-Aug-1998 #text_change 21-Jul-2000 C;Caccession: G71450
R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, H.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, Y.; Haikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Sawada, M.; Horikawa, Y.; Hino, Y.; Yamamo R;Kawarabayasi, Y.; Yamamo R;Kawarab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Residues: 1-156 <KAW>
A;Cross-references: GB:AP000007; NID:g3236134; PIDN:BAA30904.1; PID:g3258221
A;Experimental source: strain OT3
A;Experimental source: strain OT3
C;Genetich: accession replaces an interim accession for a sequence replaced by GenBank C;Genetics:
A;Gene: PH1785
                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A:Cross-references: GB:AP000001; NID:g3236128; PIDN:BAA29334.1; PID:g3256651 A:Experimental source: strain OT3 A:Note: this accession replaces an interim accession for a sequence replaced C:Genetics:
            R; Kawarabayasi, Y.; Sawada, M.; Ohfuku, Y.; Funahashi,
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Gene: PH0262
C;Superfamily: Pyrococcus abyssi hypothetical protein PAB0162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: preliminary; nucleic acid sequence not shown; translation A; Molecule type; DNA A; Residues: 1-192 <KAW>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Title: Complete sequence and gene organization of the genome of a hyper-thermophilic A; Reference number: A71000; MUID:98344137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        M.; Ohfuku, Y.; Funaha:
DNA Res. 5, 55-76, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hypothetical protein PH0262 - Pyrococcus horikoshii C; Species: Pyrococcus horikoshii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Accession: G71450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Reference number:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                          139
                                                                                                                                                                                                                                                                                                                154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         129 LDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Sin
hes 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                  98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69 VIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISI 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 IIFILSESEPLTMIALAISMSSWENIWNNALSDLGHAVKSSVAPIENL---GLAIGGILI 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7
                                                                                                                                                                                                                                                                                                                                               IIG-HIAMWYLHFASEIPRGAAIPELLAVFSFL 170
                                                                                                                                                                                                                                                                                                             LLGVPLALWSL----KKFEGVAVAETISIVVFL 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WENIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRNLYSW----SRVKGSLIIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YSRTWRIIATITFTIMVILVSFKI----GLAIPELIGAAAILSYIL 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MG-VFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISILDKSWI-----AVLL 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WWGITENAISDLGR-IGLPYNWVMNISLILGSVCLIIYG----AWRFKKSKDIGWLLYM 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IVMVIYF --- IIGLALVISQNPWFSFTKNALSDMGSA-KNPKGWMFNLYIIGLGIIGIIV
                                                                                                                                                                                                                                                                                                                                                                                                                               LGSVFLGLIGIFPEGTN-LHYEVSWGFFVSM---FLAILLLSISFLIRGNKLGIVGLMLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Y.; Funahashi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                            #sequence_revision 14-Aug-1998 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -LKISM-ILLILVGIFPEEEP-PHTPSAILMYL---LSFIDMGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ∺ ≭
:: ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32;
         Horikawa, H.; Haikawa,
Tanaka, T.; Kudoh, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Horikawa, H.;
Tanaka, T.; K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 144.5; DB 2;
Pred. No. 2.7e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 142; DB 2;
Pred. No. 5.2e-05;
2; Mismatches 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a, H.; Haikawa,
T.; Kudoh, Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Y.; Hino,
Yamazaki,
         Y.; Hino, Y.;
Yamazaki, J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٦ ٢
: :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         replaced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yamamoto,
Kushida,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
         Yamamoto, S.;
Kushida, N.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ьy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenBank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Sekir
Oguchi
         Oguchi
                                    Sekin
G72486
hypothetical protein
C; Species: Aeropyrum
                                                                                                                                                                                        DЬ
                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
A75149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                               RESULT
```

```
Query Match
Best Local Similarity
"~+~hes 42; Conserv
                                                                                                                                                                                                                                                                                                                                                                                         A; Experimental source: strain C; Genetics: A; Gene: PAB0225
                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Molecule type: DNA
A;Residues: 1-156 <KAW>
A;Cross-references: GB:AJ248284; GB:AL096836; NID:g5457730;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Reference number: A75001
A; Accession: A75149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;anonymous, Genoscope
submitted to the EMBL Data Library, July 1999
A;Description: Pyrococcus abyssi genome sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Species: Pyrococcus abyssi
C;Date: 20-Aug-1999 #sequence_revision 20-Aug-1999 #text_change
C;Accession: A75149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene: PH1610
C;Superfamily: Pyrococcus abyssi hypothetical protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:AP000006; NID:g3236133; PIDN:BAA30722.1; PID:g3258039
A;Experimental source: strain OT3
A;Note: this accession replaces an interim accession for a semience replaced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA Res. 5, 55-76, 1998
A;Title: Complete sequence and gene organization of
A;Reference number: A71000; MUID:98344137
A;Accession: B71040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-183 <K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hypothetical protein PAB0225 - Pyrococcus abyssi (strain Orsay)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Status: preliminary; nucleic acid sequence not shown; translation not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity Matches 40; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  148 ILALLGLFIPWPSVAL 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             123 FIAISILDKSWIAVLL 138
                                                                                                                                    72 GLRNLYSWSRVKGSLIISMGVFLNLIGVFDE---VYGWIHFLVSVLFFLSIIAYFIAISI 128
                                                                                                                                                                                                                                 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88 VGGAYISISSLFLALIGIFHAGTRPHVFVSTYFFIQFFLGMLIYGVGSKTAIRLTSIIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82 VKGSLIISMGVFLNLIGVFD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28 AISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILI-----VIVGLRNLYSWSR 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30 SISNNPWFSFFKNALSDLGDPAKASHPWIYNYGLIVTSPFVLAFSIYLIIAAKN--KIQT 87
                                                                                                                                                                                 4 ALSIALTLYFILGLALVVHENSWFSFSKNALSDMG-SLRNPKGWMFN-----VFIIGL
                                                                                                                                                                                                                     SFSFPLTM-----IALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIV 71
                                             LDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYI 174
                                                                                          GLLGLVTSLMLKRKILTLSMAFLVLVGVFPEEKPLHTPSAILTYILAFTDMVIYG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1-183 <KAW>
-GIWRVVGIGTEMVMLFLINLKVGLAIPELIGAASILAXIL 150
                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                               13.4%; Score 126.5; DB 2
25.3%; Pred. No. 0.00082;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Orsay
                                                                                                                                                                                                                                                                         33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 129.5; DB 2
Pred. No. 0.00054;
2; Mismatches 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         interim accession for a sequence replaced
                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --EVYGWIHFLVSVLFF-----LSIIAY 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                                                            64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              insights
                                                                                                                                                                                                                                                                                                                    2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAB0162
                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                into
                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIDN:CAB49272.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of a
                                                                                                                                                                                                                                                                         27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                archaeal chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hyper-thermophili
                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                    55
                                                                                          110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            147
                                                                                                                                                                                                                                                                         <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PID:e151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            by GenBa
```

APE2535 pernix

Aeropyrum

pernix

(strain

<u>7</u>1

```
A;Molecule type: DNA
A;Molecule type: HEI>
A;Residues: 1-401 <HEI>
A;Cross-references: GB:AE004215; GB:AE003852; NID:g9655842; PIDN:AAF94519.1; GSPDB:GN001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-165 <KAW>
                                                                                                                                                                                                                                                                                                                                                                            A; Gene
A; Map
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Heidelberg, J.F.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; Gwinn, M.L.; Dodson, R.J. chardson, D.; Ermolaeva, M.D.; Vamathevan, J.J.; Bass, S.; Qin, H.; Dragoi, I.; Sellers, I. R.R.; Mekalanos, J.J.; Venter, J.C.; Fraser, C.M.
Nature 406, 477-483, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               amino acid ABC transporter, permease protein VC1361 [imported] - Vibrio cholerae (group C;Species: Vibrio cholerae
C;Species: Vibrio cholerae
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 15-Sep-2000
C;Accession: G82210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: DDBJ:AP000064; NID:g5105945; PIDN:BAA81551.1; PID:g5106240 A;Experimental source: strain K1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Reference number: A72450; A; Accession: G72486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Kawarabayasi, Y.; Hino, Y.; Horikawa, H.; Yamazaki, S.; Haikawa, Y.; Jin-no, K.; Takai awa, H.; Takamiya, M.; Masuda, S.; Funahashi, T.; Tanaka, T.; Kudoh, Y.; Yamazaki, J.; I DNA Res. 6, 83-101, 1999
A;Title: Complete genome sequence of an aerobic hyper-thermophilic Crenarchaeon, Aeropy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Date: 20-Aug-1999 #sequence_revision 20-Aug-1999 #text_change 20-Jun-2000 C;Accession: G72486
                                                                                В
                                                                                                                              δõ
                                                                                                                                                                          망
                                                                                                                                                                                                             ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Title: DNA Sequence of both chromosomes of A; Reference number: A82035; MUID: 20406833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C;Superfamily: Pyrococcus abyssi hypothetical protein PAB0162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Gene: APE2535
멍
                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: G82210
                                                                                                                                                                                                                                                                                       Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                      Gene: VC1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                            position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        132
135 YIETFRNL-PLLLQIFFWYFVVLQALPSARESMHLGEWFYLNIKGLYLAKPIFESGSIWV 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32
                                           89
                                                                                       75
                                                                                                                                 49
                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SWENIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGL---RNLYSWSRVKGS-LI 87
                                                                                                                                                                          HSKHTNLLYNPTFRSVVFQLLAVCVLAFFLYTIVNNALTNLESRGIATGFAFLEQTAGFG
                                                                                                                                                                                                                    HSWMDMIIFILSF-SFPLTMIALAISMSSWFNIWNNALSDL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAFPVYILIGITLGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SWIAVLLIIGHIAMW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LTAGLELALIGVY-PAGTRPHVFVSTWFFLQMDMALVALSLGAYRACRNLANMAALALSL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISI--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SDWFVFTEHAFSDLG-GVKARMPWIYNYGLILVGLLVTLYSLCPYRAAVERLEAFGSGLL
                                         SMGVFLNLIGVFDEVYGWIHFLVSVL------FFLSIIAYFIAISILDKS--WI 134
                                                                                     ISQSLIPYDETYSYGRTFLVGLLNTALVSVLGILLATILGFLIGIARLSSNWLISRLAAV 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41;
                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12.5%;
                                                                                                                                                                                                                                                             11.2%; Score 105.5; 1
20.1%; Pred. No. 0.1;
tive 38; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MUID:99310339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 118; DB 2;
Pred. No. 0.0043;
                                                                                                                              ---IFNLGLAIGGILIVIVGLRNLYSWSRVKGSLII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the cholera pathogen Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52;
                                                                                                                                                                                                                                                                  84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                            Length 401;
                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                  61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22;
                                                                                                                                                                                                                  ----GHA 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -- LDK 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                 88
                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                  7;
```

```
inner membrane copper tolerance protein cyc2 VC2701 [similarity] - Vibrio cholerae
N;Alternate names: thiol:disulfide interchange protein DsbD
C;Species: Vibrio cholerae
C;Species: Vibrio cholerae
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 15-Sep-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;White, O.; Eisen, J.A.; Heidelberg, J.F.; Hickey, E.K.; Peterson, J.D.; Dodson, R.J. M.; Shen, M.; Vamathevan, J.J.; Lam, P.; McDonald, L.; Utterback, T.; Zalewski, C.; S.; Smith, H.O.; Venter, J.C.; Fraser, C.M. Science 286, 1571-1577, 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     conserved hypothetical protein - Deinococcus radiodurans (strain R1)
C;Species: Deinococcus radiodurans
C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 17-Mar-2000
C;Accession: B75542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                   A; Molecule type: DNA
A; Residues: 1-600 < HEI>
A; Cross-references: GB: AE004336;
                                                                                                                                                                                                                 A; Title: DNA Sequence of both chromosomes of the cholera pathogen Vibrio cholerae. A; Reference number: A82035; MUID:20406833 A; Accession: A82043
                                                                                                                                                                                                                                                                                                                                                          R;Heidelberg, J.F.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; chardson, D.; Ermolaeva, M.D.; Vamathevan, J.; Bass, S.; Qin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Map position: 1
C; Superfamily: Bacillus subtilis conserved hypothetical protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: GB:AE001886; GB:AE000513; NID:g6457921; PIDN:AAF09838.1; PID:g645
A;Experimental source: strain R1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 1-373 <WHI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Reference number: A75250; MUID:20036896
A; Accession: B75542
                                                 C; Genetics:
                                                                           A; Experimental source: serogroup
                                                                                                                                                                                                                                                                                                      1, R.R.; Mekalanos, J.J.; Venter, J.C.; Fraser, C.M.
Nature 406, 477-483, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Gene: DR0252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Title: Genome sequence of the radioresistant bacterium Deinococcus radiodurans R1.
A;Map
                                                                                                                                                                                       A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                  C; Accession: A82043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     194 LVALIAGIIACWVLSIWATNRQRLTGQQTPMGRYILLLCVTFPVLVYFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    142 ALRDWIANIGNNIVPILQNAL-SSTGTLENRLISIGGVIGQVLLILLLSVYLMLDYARVN 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 136 VLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPF 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        201 ASLLRAFPRPWQPKVLEFSDLIGT--AVGGYVRGQL------LIAAFIGIFV----WLG 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30 SMSSWF-NIWNNALSDLGHAVKSSVAPIFNLGLAIGGI-----LIVIVGLRNLYSWSRVK 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AVLLIIGHIAMWYLHF - - - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             l Similarity
43; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --VFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISILDKSWIA 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11.18; 27.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -IPSAAAIGFLAGAFNIVPY 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29;
                                                                           GB:AE003852; NID:g9657296; O1; strain N16961; biotype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 104.5; DE
Pred. No. 0.12;
29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -- ASEIPRGAAIPELLAVFSFLPFYI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        242
                                                                              PIDN:AAF95841.1;
El Tor
                                                                                                                                                                                                                                                                                                                                                          Gwinn, M.L.; Dodson, R.
H.; Dragoi, I.; Sellers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                        GSPDB:GN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9;
```

Query Match Best Local Similarity

11.0%; 22.5%;

Score 103.5; DB Pred. No. 0.22;

2

Length 600;

```
RESULT
E82442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Superfamily: Epstein-Barr virus latent membrane protein C;Keywords: oncogene; tandem repeat; transmembrane protein F;25-45/Domain: transmembrane #status predicted <TM1>F;51-71/Domain: transmembrane #status predicted <TM2>F;76-97/Domain: transmembrane #status predicted <TM3>F;76-97/Domain: transmembrane #status predicted <TM3>
probable peptide ABC transporter, permease protein VCA0590 [imported] - Vibrio cholerae
C;Species: Vibrio cholerae
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 17-Nov-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                           밁
                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: EMBL:X58140; NID:g22937; PIDN:CAA41148.1; PID:g22938
A;Note: the authors translated the codon AAA for residue 358 as Ala
A;Note: warning: the organism was shown incorrectly as Homo sapiens in GenBank accession
C;Comment: Unlike Epstein-Barr nuclear antigen 1 (EBNA-1) (see PIR:S42440), which is exp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Hu, L.F.; Zabarovsky, E.R.; Chen, F.; Cao, S.L.; Ernberg, I.; Klein, G.; Winberg, G. J. Gen. Virol. 72, 2399-2409, 1991
A;Title: Isolation and sequencing of the Epstein-Barr virus BNLF-1 gene (LMP1) from a A;Reference number: JQ1434; MUID:92013956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992
C;Accession: JQ1434; G00065; S21660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     latent membrane protein LMP1 - human herpesvirus 4 (strain CAO) C;Species: human herpesvirus 4, Epstein-Barr virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;104-124/Domain: transmembrane #status predicted <TM4>
F;140-160/Domain: transmembrane #status predicted <TM5>
F;140-160/Domain: transmembrane #status predicted <TM5>
F;166-186/Domain: transmembrane #status predicted <TM6>
F;256-332/Region: 11-residue repeats (P-D-N-T-D-D-N-G-P-Q-D)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Gene: LMP1; BNLF-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-404 <H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Introns: 90/1; 119/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: JQ1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of nasopharyngeal carcinoma tumor biopsies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          329 GLVCSPCTTAPLSGALLYVAQSGDLLTGAVALYALAIGMGIPLILVAVFGNKLLPKAGNW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 271 QHPYVLMGLSVLFVALALSMFGLYSLQLPSGVQTWLNSLSNAQQG--GSLPGVFAMGAIS 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    164 LAVESEL 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   о
4
                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                      16
                                                                                                                                                                                                                                                                                                                                                                                                     21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G------GILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVF-----DEVYGW 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IHFLVSVLFFLSIIA-YFIAISILDKSWIAVL-LIIGHIAM-WYLHFASEIPRGAAIPEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KHSWMDMIIFILSFSFPLTMIAL-AISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAI
                                                                                                                                                                                         LWRLGATLWQLLAFILAFFLAIILLIIALYLQQNWWTLLVDLLWLLLFMAILIWMYYH
                                                                                                                                                                                                                                                                                                CPLGGLGLLLLMITLLLIALWNLHGQALYLGIVLFIFGCLL-----VFGIWIYFLEI 129
                                                                                                                                                                                                                                                                                                                                               APIFNLGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYG-WIHFL-- 110
                                                                                                                                                                                                                                                                                                                                                                                                  LSSSIGLALLLLLALLFWLYI---VMSDWTGGALLVLYSFALMLIIILLIIFIFRRDLL 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                      LSFSFPLTMIALAISMSSWFNIWNNALSD-LGHAV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IGIVAIL 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MERVKTLFGFVLLAAPIFLLERIVPEFWSSVLWSALGLAAFGWLYHVKNSLPFGGWKQSL 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1-404 <HUL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                          -VSVLFFLSIIAYFIAISILDKSWIAV-----LLIIGHIAMW-YLH 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 100.5; DI Pred. No. 0.27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #text_change 16-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----KSSV 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                         187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>۾</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                      밁
```

```
C;Geneti
A;Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hypothetical protein RP368 - Rickettsia prowazekii
C;Species: Rickettsia prowazekii
C;Date: 21-Nov-1998 #sequence_revision 21-Nov-1998 #text_change 03-Nov-2000
                              Qy
                                                                              В
                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Accession: A71694
R;Andersson, S.G.E.; Zomorodipour, A.; Andersson, J.O.; Sicheritz-Ponten, T.; Alsmark
Nature 396, 133-140, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A:Map position: 2
C:Superfamily: oligopeptide permease protein oppB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Heidelberg, J.F.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; chardson, D.; Ermolaeva, M.D.; Vamathevan, J.; Bass, S.; Qin, l, R.R.; Mekalanos, J.J.; Venter, J.C.; Fraser, C.M. Nature 406, 477-483, 2000
                                                                                                                                                                  밁
                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:AJ235271; GB:AJ235269; NID:g3868717; PIDN:CAA14827.1; PID:g386
A;Experimental source: strain Madrid E
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Title: The genome sequence of Rickettsia prowazekii A;Reference number: A71630; MUID:99039499 A;Accession: A71694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:AE004389; GB:AE003853; NID:g9657989; A;Experimental source: serogroup O1; strain N16961; biotype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-360 <HEI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Reference number: A82035; MUID:20406833 A;Accession: E82442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Accession: E82442
                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-280 <AND>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: VCA0590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Title: DNA Sequence of both chromosomes of the cholera pathogen Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary; nucleic acid sequence not shown; translation not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A71694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;Genetics:
                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131 VSISLGLWSTLLIYLI--SIPLG-ISKAIHHGSREDVWSSAVVIIGYAIP-
                                                                                                                                                                    119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      179 FLFAIILIILFASGNYFSWFPLRGLVSDNFASLPWYQQVLD--YFW-HLTLPTL--AMVI 233
230 LKEIFACFIGILFYFISLSIL
                                                                                 174 LGLSISNGLAALTGTLS----AQVNGFADINMGYGVALVGIGAIIIGRQIFLNNINNFNA 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     234 GGFATLSMLTKN 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 AYFIAISILDKS 132
                                     114 ---LF--FLSIIAYFIAISIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 LAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSII 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity 25.8 nes 34; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSLNKHSWMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLG
                                                                                                                                                                                                         3 LNKHSWMDMIIFILSFSFPLTMIALAISMSSW---FNIWNNALSDLGHAVKSSVAPIFN-
                                                                                                                                                                                                                                                                                                                                                            RP368
                                                                                                                                                                    LDLDNWLVPLILINSFIIVIVLILLKGNLGLFLRAFGFNKDLLIDLG-----KPAELYRM 173
                                                                                                                        LGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSV-----
                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25.8%;
                                                                                                                                                                                                                                                                       10.4%; Score 97.5; DB 27.7%; Pred. No. 0.34;
                                       129
                                                                                                                                                                                                                                                     29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 98.5; I
Pred. No. 0.36
29; Mismatches
                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52;
                                                                                                                                                                                                                                                     50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                           Length 280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 360;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the origin of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIDN:AAF96492.1;
El Tor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gwinn, M.L.;
H.; Dragoi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17;
                                                                                                                                                                                                                                                     23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                              58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mitochondria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Dodson, R. I.; Sellers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSPDB:GN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                                                                                                                                                                                                     6
```

```
A;Molecule type: DNA
A;Residues: 1-144 <oKr>
A;Cross-references: EMBL:X54252; NID:g13988; PID:g2654243
A;Cross-references: EMBL:X54252; NID:g13988; PID:g2654243
R;Okimoto, R.; Macfarlane, J.L.; Wolstenholme, D.R.
Nucleic Acids Res. 18, 6113-6118, 1990
A;Title: Evidence for the frequent use of TTG as the transa; Reference number: S13139; MUID:91045077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R:Okimoto, R.; Macfarlane, J.L.; Clary, J.L., Genetics 130, 471-498, 1992
Genetics 130, 471-498, 1992
A;Title: The mitochondrial genomes of two nematodes, Caenorhabditis elegans and A:Reference number: S26014; MUID:92201635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Nolecule type: DNA
A; Molecule type: DNA
A; Residues: 1-360 <HEI>
A; Cross references: GB.AE004386; GB:AE003853; NID:g9657957; PIDN:AAF96452.1; GSPDB:GN001
A: Experimental source: serogroup O1; strain N16961; biotype El Tor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Species: Vibrio cholerae
C;Species: Vibrio cholerae
C;Date: 18 Aug-2000 #sequence_revision 20-Aug-2000 #text_change 15-Sep-2000
C;Accession: CB2424
R;Heidelberg, J.E.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; Gwinn, M.L.; Dodson, R.J. chardson, D.; Ernolaeva, M.D.; Vamathevan, J.; Bass, S.; Qin, H.; Dragoi, I.; Sellers, I., R.R.; McKalanos, J.J.; Venter, J.C.; Fraser, C.M.
Nature 406, 477-483, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NADH dehydrogenase (ubiquinone) (EC 1.6.5.3) chain 6 - Caenorhabditis elegans mitochondx (;Species: mitochondrion Caenorhabditis elegans C;Decies: m-T-Feb-1993 #sequence_revision 12-Feb-1993 #text_change 20-Jun-2000 C;Accession: S26026; S25799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: DNA Sequence of both chromosomes of the cholera pathogen Vibrio cholerae A;Reference number: A82035; MUID:20406833 A;Accession: C82445 A;Status: preliminary
                                                                                                        A;Start codon: ATA
C;Superfamily: NADH dehydrogenase (ubiquinone) chain
C;Keywords: mitochondrion; NAD; oxidoreductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                             A; Genetics:
                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 1-25 < OK2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hypothetical protein VCA0550 [imported] – Vibrio cholerae (group Ol strain N16961)
C;Species: Vibrio cholerae
                                                                                                                                                                                          A; Genetic code:
                                                                                                                                                                                                                      A; Genome: mitochondrion
                                                                                                                                                                                                                                                                                                   A; Cross-references: EMBL: X54252
                                                                                                                                                                                                                                                                                                                                                                               A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Map position:
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  106 W-----IHFL-----VSVLFFLSIIAYFIAI-----SILDKSWIAVLLIIG 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WRQRHHSHLLPLNRYAQMVSTIWYFALVSGLIAIIIGFASTGDTLLSLPLLLILG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KS---VSFSMNSKMGVILCVLAILGGI-----ALSYSLGLTLFGFLLLMGALDIVFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KSSVAPIFNLGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGV----FLNLIGVFDEVYG 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WQDVVISIMGPCFGFLLSLLLVGVYWVTDSPFWAALAVFNAFLNLFNLLPVLPLDGGHIL 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WMDMIIFILS--FSFPLTMIALAI----SMSSW-----FNIWNNALS------DLGHAV 49
                                                                                                                                                                                                                                                                                                                                                                               S25799
                                                                                                                                                                                          SGC4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10.4%; Score 97.5; DB 25.9%; Pred. No. 0.43; tive 29; Mismatches
10.3%;
Score 97; DB 2
Pred. No. 0.21;
                                                                                                                                                                                                                                                                                                                                                                                                                                  as the translation initiation codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DВ
                      , 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2;
                            Length 144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 360;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ascaris
                                                                                                                                                                                                                                                                                                                                                                                                                                     of.
                                                                                                                                                                                                                                                                                                                                                                                                                                        2
```

```
A;Experimental source: strain 9a5c

R;Simpson, A.J.G.; Reinach, F.C.; Arruda, P.; Abreu, F.A.; Acencio, M.; Alvarenga, R. Briones, M.R.S.; Bueno, M.R.P.; Camargo, A.A.; Camargo, L.E.A.; Carraro, D.M.; Carrer as Neto, E.; Docena, C.; El-Dorry, H.; Facincani, A.P.; Ferreira, A.J.S. submitted to GenBank, June 2000

A,Authors: Ferreira, V.C.A.; Ferro, J.A.; Fraga, J.P.; Franca, S.C.; Franco, M.C.; Fr J.D.; Junqueira, M.L.; Kemper, E.L.; Kitajima, J.P.; Krieger, J.E.; Kuramae, E.E.; La chado, M.A.; Madeira, A.M.B.N.; Madeira, H.M.F.; Marino, C.L.; Marques, M.V.; Martins, P.A.; Nunes, L.R.; Oliveira, M.M.; Menck, C.F.M.; Miracca, E.C.; Miyaki, C.F.G.; Nunes, L.R.; Oliveira, M.A.; de Oliveira, M.C.; de Oliveira, R.C.; Palmieri, Rodrigues, V.; Rosa, A.J. de M.; de Rosa Jr., V.E.; de Sa, R.G.; Santelli, R.V.; Sawa A; Authors: da Silva, A.C.R.; da Silva, F.R.; da Silva, A.M.; Silva Jr., W.A.; da Silva, M.A.; Verjovski-Almeida, S.; Vettore, A.L.
                                                                                                         밁
                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Title: The genome sequence of the plant pathogen Xylella fastidiosa. A;Reference number: A82515; MUID:20365717
A;Note: for a complete list of authors see reference number A59328 bel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Accession: H82822
R; anonymous, The Xylella:
Nature 406, 151-157, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
  밁
                                                 δÃ
                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Gene: XF0318
C;Superfamily: NADH dehydrogenase (ubiquinone) chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Species: Xylella fastidiosa
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 02-Sep-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NADH-ubiquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Reference number: A59328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: GB:AE003884; GB:AE003849; NID:g9105127; PIDN:AAF83129.1; GSPDB:GN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Residues: 1-485 <SIM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: H82822
                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Species:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                127 FMNFSSYFLNFS 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     116 FLSIIAYFIAIS 127
                                                 131 KSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSF 169
                                                                                                                                                                                                                                                                              15 ILSFSFPLTMIALAISMSSWFNIWNNALS--DLGHAVKSSVAPIFNLGLAIGGILIVIVG 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14 FILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGL 73
                                                                                                                                                                 73 LRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLF--FLSIIAYFIAISILD 130
                                                                                                                                                                                                                         22 LIGSTFALLMIDLFIGQAR--KVWTHFLSVAILGVVLSMLVAGVGGQGAAFHGMF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SSLSKINVVKSYMAVFLLLLSMLYFSPTVLTYSSYLGLSGFYYSIY-WFIFCFILVCLLF 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RNLYSWSRVKGSL----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FFLIFSLLFSMPVISMSMHIWFS-
-----VLVSAGHLLMVYLGL------ELLALCSY 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xylella fastidiosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31;
                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   oxidoreductase, NQO14 subunit XF0318 [imported] - Xylella fastidiosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xylella fastidiosa Consortium of the Organization for Nucleotide
                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                         VRDSAADVMKVVIVLVSALSLVYGWSYLRERNLFQGEIPVLVLFATLGMM- 124
                                                                                                                                                                                                                                                                                                                                                                10.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23;
                                                                                                                                                                                                                                                                                                                                                                Score 96.5; DB Pred. No. 0.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -IISMGVFLNLIGVFDEVYGWIHF---LVSVLF 115
                                                                                                                                                                                                                                                                                                                                                                                          DB 2; Length 485;
                                                                                                                                                                                                                                                                                                                                        59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---YFICLLFLSGIFVILVYF 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          below
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                            74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4;
                                                                                                                                                                                                                                                                                                                                        ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seq
```

Search completed: May Job time: 91 sec

30,

2001,

```
ritle:
Perfect score:
Sequence:
                                                                                                                                                                                                                       OM protein - protein search, using sw model
                  Scoring table:
                                                                                                                                                                                   Run on:
                                                                                                                                    May 30, 2001, 15:24:05; Search time 9.55 Seconds (without alignments) 660.001 Million cell updates/sec
BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                US-09-382-242-33
942
                                                         1 MSLNKHSWMDMIIFILSFSF.....AVFSFLPFYIRDYFKSYTKR 184
                                                                                                                                                                                                                                                                              GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
```

Total number of hits satisfying chosen parameters:

93435

93435 seqs, 34255486 residues

Searched:

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database : SwissProt_39:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID .	Description
1	00.	10.7	40	_ ;	MP1	epstein-
2		10.4	280	1	۳	l ricketts
ω	97		144	_	M9D	5 caenorha
4	96	•	419	بر	YHAP_BACSU	-
5	4.	10.0	397	1	UT2_RAT	3 rattus no
6			1228	H	ALA5_ARATH	3 arabid
7	. 94	•	394	_	CC91_YEAST	w
80	.93.5		460	_	MVIN_HELPJ	7 h
9	93		383	_	YJK8_YEAST	-
10	90.5	٠	532	Н	YABM_BACSU	6
11	89.5		461	<u> </u>	MVIN_HELPY	helicoba
12	89		226	1	ATP6_APILI	Q00275 apis mellif
13	89	9.4	243	μ	Y23B_MYCPN	тусо
14	89	9.4	277	ب	Y233_METJA	
15	88.5		397	1	UT2_HUMAN	
16	88		313	Н	NU1M_RHISA	rhip
17	~		387	Н	A2AB_MACPR	019025 macroscelid
18	87.5		453	Ļ	A2AB_RAT	
19	7	•	455	Н	A2AB_MOUSE	P30545 mus musculu
20	87.5	9.3	475	_	ARCD_LACSK	lac
21	87.5		1202	1	ALAA_ARATH	_
22	87	•	261	_	COX3_GADMO	
23	87	•	261	_	FLIR_ERWCA	Ν
24	8	9.2	551	_	YIDE_HAEIN	P44472 haemophilus
25	6	•	198	\vdash	COP_CLOPE	U
26	86.5	•	305	_	YVBV_BACSU	
27	6	9.2	364	1	YEJB_ECOLI	42-
28	86	9.1	275	ب	TAGG_BACSU	295
29	86	9.1	299	۳	Y440_METJA	Q57882 methanococc
30	86	9.1	319		Y189_MYCPN	P75262 mycoplasma
31	86	9.1	341	۰	NU2M_DROYA	
32	86	,		۲		037381 acanthamoeb
		9.1	369	- -	NU1M_ACACA	

δÃ В QΥ

16 LSFSFPLTMIALAISMSSWFNIWNNALSD-LGHAV------

-----KSSV 53

85.5 9.1 492 1 NUAM, CHOCK 85.5 9.0 279 1 DMSC_HAEIN 85 9.0 393 1 YHFC_ECOLI 85 9.0 393 1 YHFC_ECOLI 85 9.0 1029 1 YFC5_YEAST 84.5 9.0 1230 1 ATP6_ASTPE 84.5 9.0 397 1 UT2_RABIT 84.5 9.0 430 1 RFBX_SALTY 84.5 9.0 430 1 RFBX_SALTY 84.5 9.0 450 1 AZAB_HUMAN 84.5 9.0 474 1 ST24_SCHPO 84.5 9.0 660 1 Y390_MYCPN 84.5 9.0 1203 1 ALAB_ARATH 84 8.9 332 1 YPHD_ECOLI
2492 393 1029 1029 1397 1430 1430 450 450 1474 11203 1332
NU4M_CHOCR DMSC_HAEIN YHFC_ECOLI YFC5_YEAST ATP6_ASTPE UT2_RABIT TREBX_SALTY A2AB_HUMAN ST24_SCHPO ST24_SCHPO T 390_MYCPN ALAB_ARATH YPHD_ECOLI VPHD_ECOLI
UMAM. CHOCR DMSC_HAEIN YHFC_ECOLI YFFC_FCAST ATP6_ASTPE UT2_RABIT RFBX_SALTY A2AB_HUMAN ST24_SCHPO Y390_MYCPN ALAB_ARATH YPHD_ECOLI

ALIGNMENTS

	RESULT FEEL OF COCCOCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
Query Best Match		
y Match Local hes 4	BYCOMP STREET ST	
10. Similarity 23. 2; Conservative	VC STANDARD; PRT; 1992 (Rel. 24, Created) 1994 (Rel. 20, Last sequency 1994 (Rel. 30, Last annotaty MEMBRANE PROTEIN 1 (LMP-1) -barr virus (strain Cao) (H ; dsDNA viruses, no RNA sta rpesvirinae; Lymphocryptovi XID-31525; E FROM N.A. =92013956; PubMed=1681026; , Zabarovsky E.R., Chen F., G.; ion and sequencing of the E from a Chinese nasopharynge Virol. 72:2399-2409(1991). CTION: THE LATENT MEMBRANE	
7 % ;	STANDARD; PR cel. 24, Created) cel. 24, Last seque cel. 30, Last annot E PROTEIN 1 (LMP-1 irus (strain Cao) viruses, no RNA s inae; Lymphocrypto Ovsky E.R., Chen F covsky E.R., Chen F sequencing of the Chinese nasopharyn THE LATENT MEMBRAN THE LATENT MEMBRAN Tres a license caption in the of institute of institute of institute of institute in naticus in stitution his statement is n res a license eagre in to license eagre in	
Score 1 Pred. N 28; Mism	LEBVC STANDARD; PRT; 404 AA. \$62; \$62; \$52-1992 (Rel. 24, Created) \$52-1994 (Rel. 30, Last sequence update) \$527-1994 (Rel. 30, Last annotation update) \$527-1994 (Rel. 30, Last sequence updat	
re 100.5; DB id. No. 1.1; Mismatches		
53;	J4 AA. Jate) Ipdate) herpesvirus 4) herpesviridae; in-Barr virus B arcinoma."; ZIN HAS TRANSFO Is produced th There are no ong as its con ong as its con oved. Usage b (See http://www) J. IC. IC. IC. IC. IC. IC. IC.	
Length . Indels	erg I., Klein us BNLF-1 gene us BNLF-1 gene us BNLF-1 gene us BNLF-1 gene us EMBL a co nd the EMBL a content is content is by and for /www.isb-sib.d	
404; 55;	Klein G. 1 gene 1 gene G ACTIVI h a colli h a colli h is in nd for co	
Gaps	inticon interest in the contract in the contra	
8	tion on . its way	

```
RESULT 2
Y368_RICPR
ID Y368_RICPR
AC Q9ZDG1;
RESULT 3
NU6M_CAEEL
ID NU6M_C
AC P24885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                         밁
                                                                          δõ
                                                                                              망
                                                                                                               δÃ
                                                                                                                                  В
                                                                                                                                                   Ş
                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                        Query Match
Best Local S
Matches 39
                                                                                                                                                                                                                      TRANSMEM
TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
NU6M_CAEEL P24885;
                                                                                                                                                                                                                                                           TRANSMEM TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                       Andersson S.G.E., Zomorodipour A., Andersson J.O., Sicheritz-Ponten T., Alsmark U.C.M., Podowski R.M., Na Sicheritz-Ponten T., Alsmark U.C.M., C.G.; Erikeson A.-S., Winkler H.H., Kurland C.G.; "The genome sequence of Rickettsia prowazekii and the
                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                       Hypothetical protein;
                                                                                                                                                                                                                                                                                                  EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                     Nature 396:133-140(1998).
                                                                                                                                                                                                                                                                                                                                                                                                              mitochondria."
                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=99039499; PubMed=9823893; Andersson S.G.E., Zomorodipour A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rickettsiaceae;
NCBI_TaxID=782;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Proteobacteria; alpha subdivision; Rickettsiales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rickettsia prowazekii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HYPOTHETICAL
                                                                                                                                                                                                                                                  TRANSMEM
                                                         230
                                                                            114
                                                                                               174
                                                                                                                                    119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78
                                                                                                                  59
                                                                                                                                                                                                                                                                                                                    send
                                                                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |: ||| : | :::: | ||: : | :: | | --
                                                         LKEIFACFIGILFYFISLSIL
                                                                           ---LF--FLSIIAYFIAISIL
                                                                                             LGLSISNGLAALTGTLS----AQVNGFADINMGYGVALVGIGAIIIGRQIFLNNINNFNA
                                                                                                                LGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSV-----
                                                                                                                                   LDLDNWLVPLILINSFIIVIVLILLKGNLGLFLRAFGFNKDLLIDLG
                                                                                                                                                     LNKHSWMDMIIFILSFSFPLTMIALAISMSSW----FNIWNNALSDLGHAVKSSVAPIFN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LWRLGATLWQLLAFILAFFLAIILLIIALYLQQNWWTLLVDLLWLLLFMAILIWMYYH 187
                                                                                                                                                                                                                                                                                                  AJ235271; CAA14827.1; -
                                                                                                                                                                       . Similarity 27.7 39; Conservative
                                                                                                                                                                                                                                                                                                                    an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                           requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                     3
52
81
123
196
233
280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ) (Rel. 39, Create
) (Rel. 39, Last s
) (Rel. 39, Last s
\L PROTEIN RP368.
                                                                                                                                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rickettsieae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -VSVLFFLSIIAYFIAISILDKSWIAV-----LLIIGHIAMW-YLH 149
                                                                                                                                                                                                                                23
72
101
143
216
253
                                                                                                                                                                                                                      30554 MW;
                                                                                                                                                                                  10.48;
                                                                                                                                                                                                                                                                                       Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                         250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence
                                                                                                                                                                         29;
                                                                                                                                                                        Score 97.5; DE Pred. No. 1.3; 29; Mismatches
                                                                                                                                                                                                                               POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                          POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rickettsia
          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                      CEF294794D843FA1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
         144 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                           DB
                                                                                                                                                                         50;
                                                                                                                                                                                        1;
                                                                                                                                                                                         Length 280;
                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                           Naeslund
                                                                                                                                    ----KPAELYRM 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -VFGIWIYFLEI 129
                                                                                                                                                                                                                                                                                                                                                                                                                        origin
                                                                                                                                                                                                                                                                                                                                is
for
                                                                                                                                                                         23;
                                                                                                                                                                        Gaps
                                                                                                                                                      58
                                                                                                                                                                         6
 밁
                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                           _BACSU
                                                                                                                                                                        YHAP_BACSU
007523;
                                                                                                                          YHAP
                                                                                                                                                                                                                                                  116
                                                                                                                                                                                                                                                                     89
                                                                                                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                                                           27
 SWISS-PROT
```

ŧ

copyright.

ij,

ìs

produced

through a

collaboration

```
15-JUL-1998
15-JUL-1998
15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Okimoto R., Macfarlane J.L., Clary D.O., Wolstenholme D.R.; "The mitochondrial genomes of two nematodes, Caenorhabditis elegans and Ascaris suum."; Genetics 130:471-498(1992).
Noback M.A., Terpstra P., Holsappel S., Venema G., Bron Submilted (JUN-1997) to the EMBL/GenBank/DDBJ databases -i- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (PO-i- SIMILARITY: TO M.JANNASCHII MJ1024.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
modified and this statement is not removed. Usage by ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-MAR-1992 (Rel. 21, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-NOV-1995 (Rel. 32, Last annotation update)
NADH-UBIQUINONE OXIDOREDUÇTASE CHAIN 6 (EC 1.6.5.3).
                                                                                                                                                                                                                    Bacillus subtilis.
Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oxidoreductase; NAD; Ubiquinone; Mitochondrion. SEQUENCE 144 AA; 16788 MW; 04F51D0E354B40F9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Caenorhabditis elegans
                                                                                                 STRAIN-168;
                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                  Bacillus/Staphylococcus
NCBI_TaxID=1423;
                                                                                                                                                                                                                                                                                            HYPOTHET ICAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR; S26026; S26026.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; X54252; CAA38153.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE-92201635; PubMed-1551572;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-BRISTOL N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mitochondrion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -!- CATALYTIC ACTIVITY: NADH + UBIQUINONE - NAD(+) + UBIQUINOL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14 FILSESEPLTMIALAISMSSWENIWNNALSDLGHAVKSSVAPIENLGLAIGGILIVIVGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FMNFSSYFLNFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FLSIIAYFIAIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FFLIFSLLFSMPVISMSMHIWFS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SSLSKINVVKSYMAVFLLLLSMLYFSPTVLTYSSYLGLSGFYYSIY-WFIFCFILVCLLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RNLYSWSRVKGSL-----
                                                                                                                                                                                                                                                                                       (Rel.
(Rel.
(Rel.
L 45.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                       36, Created)
36, Last sequ
37, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10.3%;
                                                                                                                                                                                                                                                                                       Last sequence update)
Last annotation update)
PROTEIN IN SSPB-PRSA INTERGENIC
                                                                                                                                                                                                                 Bacillus/Clostridium group;
                                                                                                                                                                                           group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 97; DB 1
Pred. No. 0.81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----IISMGVFLNLIGVFDEVYGWIHF---LVSVLF 115
                                                                                                                                                                                             Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                            ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YFICLLFLSGIFVILVYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                        (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 commercia]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
```

use

between

the European Bioinformatics Institute.

Swiss Institute of Bioinformatics

There are no

restrictions EMBL outstation

ဝှ

18

in no

and the

as its content

non-profit institutions as long

```
SO STATE TO SERVICE CONTRACTOR OF THE SERVIC
  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
SEQUENCE
                                                                                                                                 urea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rattus norvegicus (Rat).
Fukarvota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                    -i- FUNCTION: SPECIALIZED LOW-AFFINITY UREA TRANSPORTER. MEDIATES TRANSPORT IN KIDNEY.
-i- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-SPRAGUE-DAWLEY; TISSUE-Kidney; MEDLINE-95386714; PubMed=7657826;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q62668;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        modified and
                                                                                                            J. Clin.
                                                                                                                                                     Shayakul C., Steel A., Hediger M.A.; "Molecular cloning and characterization
                                                                                                                                                                                                                 STRAIN-SPRAGUE-DAWLEY; TISSUE-Kidney inner medulla
                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                  "Cloning and regulation of expression
                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SLC14A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  UREA TRANSPORTER,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-OCT-2000 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UT2_RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SubtiList;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                             MEDLINE-97117152; PubMed-8958221
                                                                                                                                                                                                                                                                                                              transporter (rUT2)
                                                                                                                                                                                                                                                                                                                                                                              Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=10116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11
                                                                                                                                                                                                                                                                                  Clin. Invest. 96:1556-1563(1995).
                       TISSUE SPECIFICITY: KIDNEY
                                                                                                       transporter of rat kidney collecting ducts lin. Invest. 98:2580-2587(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFN----LGLAIGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YF--IAISILDKSW----IAVLLIIGH-IAMWYLHFASEIPRGAAIPELLAVFSFLPFY 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          I--LIVIVGLRNLYSWSRVKGSLIISMGVFLNL--IGVFDEVYGWIHFLVSVLFFLSIIA 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IMLEVIYES -- VIMYASMIAM -- -- EVATEKSSRVMEILISSMPPIQQMFAKLLGIGLVG 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FLGSVVSRIEDVQQTITPMTLLVVAGFMIAMFGLN-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ITQLAIIIGAGSLSLKLNQKSETASSVGAFLNLTDVSATTVIYAVIFFLLAYFSYATLAA
                                                                                                                                                                                                                                                                                                                                                                         C.P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Z99109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Y14078; CAA74423.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OR UT2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG12992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186
186
235
283
318
340
                                                                                                                                                                                                                                                                                                                                                                         Lee W.-S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAB12830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
TO OTHER MAMMALIAN UREA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Juap.

36
POTENTIAL.
206
POTENTIAL.
55
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KIDNEY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence
                                                                                                                                                                                                                                                                                                                                                                       Martial S., Knepper M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 397
                                                                                                                                                                                                                                                                                                                                of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
2.3;
TRANSPORTERS
                                                                                                                                                 of the vasopressin-regulated
                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Å
                                                                                                                                                                                                                                                                                                                              rat kidney
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -APDAGFITVTSFIPFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                     You G., Sands
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rattus
                                                                                                                                                                                                                                                                                                                                                                            ٠.
۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                       Q9SGG3;
01-OCT-2000
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
TRANSMEM
TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM TRANSMEM
         Theologis A., Ecker J.R., Palm C.J., Federspiel N.A., Kaul S., White O., Alonso J., Altafi H., Araujo R., Bowman C.L., Brooks S.Y., Buehler E., Chan A., Chao Q., Chen H., Cheuk R.F., Chin C.W., Chung M.K., Conn L., Conway A.B., Conway A.R., Creasy T.H., Dewar K., Chung M.F., Etgu P., Feldblyum T.V., Feng J.-D., Fong B., Fujli C.Y., Gillsmith A.D., Haas B., Hansen N.F., Hughes B., Huzar L., Hunter J.L., Jenkins J., Johnson-Hopson C., Khan S., Khaykin E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                           01-0CT-2000 (Rel. 40, Created)
01-0CT-2000 (Rel. 40, Last sequence update)
01-0CT-2000 (Rel. 40, Last annotation update)
POTENTIAL PHOSPHOLIPID-TRANSPORTING ATPASE 5
                                                                                                         STRAIN=CV. COLUMBIA; MEDLINE=21016719; PubMed=11130712;
                                                                                                                                                                                     Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II;
                                                                                                                                                                                                                                                                                                                              ARATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send an email to license@isb-sib.ch).
                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                            Brassicales;
                                                                                                                                                                                                                               ALA5 OR AT1G72700 OR F28P22.11.
                                                                                                                                                                                                                                                                                                                ALA5_ARATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transport;
                                                                                                                                                             NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140
                                                                                                                                                                                                                                                                                                                                                                                                              137
                                                                                                                                                                                                                                                                                                                                                                                                                                         234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182 AVTLYLAATGHYNLFFPTKLLQPAVTTPNITWSDVQVPLLLRAIPVGI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64 GGIL-IVIVGLRNLY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4 NKHSWMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAI
                                                                                                                                                                                                                                                                                                                                                                                   IAIGGMFYVITWQTHLLAIACALFAAYL--GAALANMLSVFGLPP
                                                                                                                                                                                                                                                                                                                                                                                                                                         GCDNPWTGGIFLVALFVSSPLICLHAAIGSTIGMLAALSIATPFDSIYFGLCGFNSTLAC
                                                                                                                                                                                                                                                                                                                                                                                                            LLIIG--HIAMWYLH-----FASEIPRGAAIPELLAVFSFLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NYYWWLLLPVIVMSMTCPILSSALSTVFSKW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  G----WIHFLVSVLFFL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U09957; AAA84392.1;
U77971; AAB50197.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
Koo H.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                            Brassicaceae;
                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85
109
135
163
163
192
257
280
303
351
210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Glycoprotein.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----SWSRVKGSLI---ISMGVFLNLIGVFDEVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30;
                                                                                                                                                                          Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 94.5;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EA2068EA25661224 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIIAYFIAISILD----
                                                                                                                                                                                                                                                                                                                1228
 Kurtz D.B.,
                                                                                                                                                                                                                                                                                                                A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DL-----PVFTLPFNI
                                                                                                                                                                                                                                             (EC 3.6.3.13).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----KSWIAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----GQVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12;
```

```
В
                                                                                                                                       Ş
       밁
                                             ş
                                                                                                                                                                                       망
                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                       STERRADARIA PROCESTA PER PROCESSOR P
                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 47; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Langin-Hooper S., Lee A., Lee J.M., Lenz C.A., Li J.H., Li Y.-P.,
Lin X., Liu S.X., Liu Z.A., Luros J.S., Maiti R., Marziali A.,
Militscher J., Miranda M., Nguyen M., Nierman W.C., Osborne B.I.,
Pai G., Peterson J., Pham P.K., Rizzo M., Rooney T., Rowley D.,
Sakano H., Salzerg S.L., Schwartz J.R., Shinn P., Southwick A.M.,
Sun H., Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,
Utterback T., Van Aken S., Vaysberg M., Vysotskala V.S., Walker M.,
Wu D., Yu G., Fraser C.M., Venter J.C., Davis R.W.;
"Sequence and analysis of chromosome 1 of the plant Arabidopsis thaliana.";
                                                                                                                                                                                                                                                                                                                                                                                                    METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
MOD_RES
                                                                                               1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
1057 AVGTTMFTCIIWAANVQIALTMSHFTWIQHVLIWGSIGMWYL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                    METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Magnesium;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS00154; ATPASE_E1_E2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AC010926; AAF21158.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nature 408:816-820(2000)
                                                                                                                                                                                          941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                            72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: INVOLVED IN TRANSPORT OF PHOSPHOLIPIDS (POTENTIAL) CATALYTIC ACTIVITY: ATP + H(2)O = ADP + PHOSPHATE. SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SIMILARITY: BELONGS TO THE CATION TRANSPORT ATPASES FAMILY
                                                                                             QFPALYQQGTKNLFFDWSRILGWMCNGVYASLVI---FFLNIGIIYSQAFRDNGQTADMD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (E1-E2 ATPASES). SUBFAMILY IV.
                                                                                                                                                                                       FYKNIAFGLTLFYFEAFTGFSGQSVYNDYYLLLFNVVLTSL-PVIALGVFEQDVSSEICL
                                                                                                                                                                                                                                  FILSESEPLTMIAL-AISMSSWENIWNNALSDLGHAVKSSVAPIENLGLAIGGILIVIV-
                                             -VSVLFFLSII----AYFIAISILDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAV 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                       Transmembrane;
                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75
97
101
124
306
328
                                                                                                                         -GLRNL-YSWSRVKG------SLIISMGVFLNLIGVFDEVY---GWIHFL-
                                                                                                                                                                                                                                                                                                                                                                                                    A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    359
377
934
954
968
988
1018
1018
1054
1077
11077
11083
11104
                                                                                                                                                                                                                                                                                                       10.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              family.
                                                                                                                                                                                                                                                                                                                                                                                                    139340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Phosphorylation; ATP-binding;
                                                                                                                                                                                                                                                                                    33;
                                                                                                                                                                                                                                                                                                                                                                                                    MW;
                                                                                                                                                                                                                                                                                                     Score 94.5;
Pred. No. 7;
                                                                                                                                                                                                                                                                                                                                                                                                                     CYTOPLASMIC (POTENTIAL).
PHOSPHORYLATION (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
MAGNESIUM (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CYTOPLASMIC (POTENTIAL).
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CYTOPLASMIC (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EXTRACELLULAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                  47E47A9297131CB8 CRC64;
                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL)
                                                                                                                                                                                                                                                                                  60;
                                                                                                                                                                                                                                                                                                                               Length 1228;
                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Metal-binding;
                                                                                                                                                                                                                                                                                  45;
                                                                                                                                                                                                                                                                               Gaps
                                                                                             1056
                                                                                                                                                                                                                                  71
                                                                                                                                                                                                                                                                                  10;
```

```
RESULT 7
CC91_YEAST
ID CC91_YEAST
AC P41733;
DT 01-NOV-1995 (
DT 01-NOV-1996 (
DT 01-OCT-1996 (
DT 01-OCT-1996 (
DT 01-OCT-1996 (
DT 01-OCT-1996 (
CELL DIVISION
GN CDC91 OR YLR4
OS Saccharomyces
OC Eukaryota; Fty
OC Saccharomyces
OC Eukaryota; Fty
OC Saccharomyces
OC Eukaryota; Fty
OC Saccharomyces
OC Extractive (
RN [1]
RP SEQUENCE FROM
RA Bi E., Pringl
RL Submitted (X)
RN [2]
RN [2]
RN Favello A., If
RA Wardis E., M
RA Favello A., If
RA Wilcox L., M
ROM
CC This SWISS-P
CC This SWISS-P
CC Detween the
CC modified and
CC or send an en
CC modified and
CC or send an en
CC modified and
                                                                                                                                                               Ş
  밁
                                                 δÃ
                                                                                                              В
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                              뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-S288C / AB972;
Johnston M., Andrews S., Brinkman R., Cooper J., Ding H.,
Favello A., Fulton L., Gättung S., Greco T., Kirsten J.,
Kucaba T., Hallsworth K., Hawkins J., Hillier L., Jier M.,
Johnson D., Johnston L., Langston Y., Latreille P., Le T.,
Mardis E., Menezes S., Miller N., Nhan M., Pauley A., Pelu
Rifken L., Riles L., Taich A., Trevaskis E., Vignati D.,
Rifken L., Riles L., Taich A., Theoremson R., Waterston R.
Wilcox L., Wohldman P., Vaudin M., Wilson R., Waterston R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence up
01-OCT-1996 (Rel. 34, Last annotation
CELL DIVISION CONTROL PROFEIN 91.
CDC91 OR YLR459W OR L9122.2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Saccharomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Saccharomyces cerevisiae (Baker's yeast).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         modified and this statement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
STRAIN-S288C / AB972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
  289
                                                                                                                                                                                                                               169
                                                                                                                                                                                                                                                                                                                                  114 WLPGLLYAVN---PLTLLS-CISRSS-IIFTNFAISSSLYCILAEGNVLLSSVMISISGY 168
                                                       143 IAMWYLHFASEIPRGAAIPELLAVFSFLPFY
                                                                                                              229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             167 FSFLP 171
                                                                                                                                                                                                                                                                                 61 LAIGGILIVIVGLRNLYSW-SRVKGSLIISMGVFLNLI------GVFDEVYG--- 105
                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S0004451; CDC91.
division; Cell cycle.
ENCE 394 AA; 44741 MW;
                                                                                                              TFEKVFPNLGLWWYFFIEMFDTFIPFFKAVFNIFIAVFITPFTLRYHKQPFYAFILCIGW
                                                                                                                                                               LSVYPILLLIPLLGMLKSWRQRILSAIVSILSLLILLLFSYSILGSQSWSFLTQVYGSII
                                                                                                                                                                                                                                                                                                                                                                                            WMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YSMMP 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U22383; AAB64722.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pringle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      non-profit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ingle J.R.;
(XXX-1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Saccharomycetaceae; Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         institutions as long as its content atement is not removed. Usage by ar
-SLGDAGFFFSFLPFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10.0%;
22.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                         40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 94;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75F4BD39FF871A58 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Waterston R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 394
                                                                                                                                                                                                                                                                                                                                                                                               -GHAVKSSVAPIFNLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peluso
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        D
                                                                                                                                                                                                                                                                                                                                                                                                                                                         58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                         11;
```

RESULT 8
MVIN_HELPJ
ID MVIN_H

MVIN_HELPJ

STANDARD;

PRT;

460

₽

```
Qy
                                                                                                                                                   δÃ
                                                                                                                                                                                 밁
                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                      В
     D S F F F F
                                                                      RESULT 9
YJK8_YEAST
                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                          Matches
  YJK8_YEAST
P42946;
01-NOV-1995
01-NOV-1995
15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9ZKW7;
30-MAY-2000
30-MAY-2000
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.

MEDLINE=99120557; PubMed=9923682;

Alm R.A., Ling L.-S.L., Moir D.T., King B.L., Brown E.D.,

Smith D.R., Noonan B., Guild B.C., deJonge B.L., Carmel G.

Smith D.R., Noonan B., Guild B.C., deJonge B.L., Carmel G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gastric pathogen Helicobacter pylori.";
Nature 397:176-180(1999).
-i- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tummino P.J., Caruso A., Uria-Nickelsen Milbson R., Merberg D., Mills S.D., Jiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Helicobacter pylori J99 (Campylobacter pylori J99).
Bacteria; Proteobacteria; epsilon subdivision; Helicobacter group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MVIN OR JHP0817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transmembrane.
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AE001511; AAD06398.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Genomic sequence comparison of two unrelated isolates of the human gastric pathogen Helicobacter pylori.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VIRULENCE FACTOR MVIN
                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -! - SIMILARITY: BELONGS TO THE MVIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                           FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FRANSMEM
                                                                                                                             445
                                                                                                                                                                                  391
                                                                                                                                                                                                                                      332
                                                                                                                                                                                                                                                                                                                                                                                                               RANSMEM
                                                                                                                                                                                                                                                                15
                                                                                                                                                                                                          74
                                                                                                                          -KSWVT-----HLYLFY 455
                                                                                                                                                   DKSWIAVLLIIGHIAMWY 147
                                                                                                                                                                                 LGLALANSLSGLFLFVLTIKAFGFQSFLGIIKNLKSWL----
                                                                                                                                                                                                          RNLYSWSRVKGSLIISMGV----FLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISIL 129
                                                                                                                                                                                                                                     ITSQVFSLYLLGLLPFGLTKLFSLWLYAKLEQKKAAKISLISLF-LGLAASLSLMPLLGV
                                                                                                                                                                                                                                                              ILSFSFPLTMIA-LAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGL
                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Rel.
    (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                            ΑĄ;
                                                         STANDARD;

    39, Created)
    39, Last sequence update)
    40, Last annotation update)
    MVIN HOMOLOG.

32, Created)32, Last sequence update)37, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                            448
51484
                                                                                                                                                                                                                                                                                                   9.9%;
22.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Uria-Nickelsen M., Mills D.M., Ives C.,
ills S.D., Jiang Q., Taylor D.E., Vovis G.F.,
                                                                                                                                                                                                                                                                                                                                                            ¥.
                                                                                                                                                                                                                                                                                          ω
33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                       Pred.
                                                                                                                                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
                                                         PRT;
                                                                                                                                                                                                                                                                                       core 93.5; Dred. No. 3.7;
                                                                                                                                                                                                                                                                                                                                                           0E957BB6023C1FC1 CRC64;
                                                         383
  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.ch/announce/
                                                         A
                                                                                                                                                                                                                                                                                                                    DΒ
                                                                                                                                                                                                                                                                                          55;
                                                                                                                                                                                 -VILFLACVEILLLLAF-
                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Doig
                                                                                                                                                                                                                                                                                         19;
                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ġ
                                                                                                                                                                                                                                                                73
                                                                                                                                                                                                                                                                                         6
```

```
밁
                                                                                                                                                     Ş
                                                                                                                                                                              B
                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                          Вþ
                                                                                                                                                                                                                                                                                              Qy
YABM_BACSU
                                                                                            RESULT 10
                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                         Matches
                  YABM_BACSU
P37555;
01-OCT-1994
01-OCT-1994
01-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; x85021; CAA59386.1; -. EMBL; Z49383; CAA89402.1; -. SGD; S0003644; YJL108C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               between the Swiss Institute of Bioinformatics and the EMBL outst
the European Bioinformatics Institute. There are no restrictions
use by non-profit institutions as long as its content is in
modified and this statement is not removed. Usage by and for con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "A 37.5 kb region of yeast chromosome X i and CSD3 genes, a TCP-1-related gene, an to the DALBO gene, and a tRNA(Arg)."; Yeast 11:873-883(1995).
           HYPOTHETICAL
                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
-!- SIMILARITY: TO S.POMBE SPAC16A10.01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=S288C / FY1679;
MEDLINE=96090136; PubMed=7483851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Fungi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces cerevisiae (Baker's yeast).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYPOTHETICAL 41.5 KDA PROTEIN IN GZF3-IME2 INTERGENIC REGION YJL108C OR J0811.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rasmussen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Saccharomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
                                                                                                                              254 TGYVVTYWAGKHFANSTEFTAALAAFVIGVLGNLYSRIWKGLAVSAMLPAIFVQVP 309
                                                                                                                                                      141
                                                                                                                                                                              198
                                                                                                                                                                                                                             139
                                                                                                                                                                                                     97
                                                                                                                                                                                                                                                                          88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                               8 WMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGI-
                                                                                                                                                                                                                                                                         WVNLAI----SFFMGLCVGSLQFILSQKSYMYSNVFE----ISASIVVSF-CGRAFGSIP
                                                                                                                                                     -GHIAMWYL--HFA---
                                                                                                                                                                              ----SALFGWMYHNATNEISCPQLISPWFRFLFVPAFTISISLLNQAHISQLPVMVFISC
                                                                                                                                                                                                    IGVFDEVYGWIHF------LVSVLF:FLSIIAYFIAISILDKSWIAVLLII-----
                                                                                                                                                                                                                           RSHICFGAVTQGSLALILPGYIILCGALELQSRSLVAGAVRMFYAIIYSLFLGFGITLG-
                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S.W.
                                                                                                                                                                                                                                                                                                                                                                                           1 protein;
66 86
88 108
118 131
142 16:
181 20
217 23
242 26
272 25
294 3:
           (Rel.
(Rel.
L 57.4
                                            (Rel.
                                                                                                                                                                                                                                                                                                                        Conservative
                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ascomycota; Saccharo; Saccharomycetaceae;
         30, Last sequence update)
31, Last annotation updat
KDA PROTEIN IN MFD-DIVIC
                                           30, Created)
                                                                                                                                                                                                                                                                                                                                                                                                          108
138
162
201
237
237
262
292
                                                                                                                                                                                                                                                  -----SLIISMGVFLNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86
                                                                                                                                                                                                                                                                                                                                                                                  41488
                                                                                                                                                                                                                                                                                                                                  9.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                  MW;
                                                                                                                                                                                                                                                                                                                       40;
                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                   Score 93;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saccharomycotina; Saccharomycetes; cetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                  2030F73D1823CE04 CRC64;
                                                                                                                                                                                                                                                                                                                        Mismatches
        ACION update)
                                                                     532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X includes the san open reading
                                                                                                                                                                                                                                                                                                                                   DB
3.4;
                                                                                                                                                     SEIPRGAAIPELL-AVFSFLP 171
                                                                     A
                                                                                                                                                                                                                                                                                                                                             1;
           INTERGENIC
                                                                                                                                                                                                                                                                                                                        59;
                                                                                                                                                                                                                                                                                                                                              Length 383;
                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SME1, MEF2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     frame
                                                                                                                                                                                                                                                                                                                        ; 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     similar
                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GSH1
                                                                                                                                                                                                                             197
                                                                                                                                                                                                                                                   96
                                                                                                                                                                                                                                                                         138
                                                                                                                                                                                                                                                                                               66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       its
                                                                                                                                                                                                                                                                                                                       12;
```

```
RESULT 11
MVIN_HELPY
ID MVIN_H
AC 025551
DT 30-MAY
DT 30-MAY
                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    $\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
   MVIN_HELPY
025551;
30-MAY-2000
30-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro;
Pfam; PF0]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; D26185; BAA05292.1; -. EMBL; Z99104; CAB11833.1; -. Subtilist; BG10120; yabM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use of the property o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ogasawara N., Nakai S., Yoshikawa H.;
"Systematic sequencing of the 180 kilobase region of the Bacillus subtilis chromosome containing the replication origin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hypothetical
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteria; Firmicutes; Bacillus/Clostridium Bacillus/Staphylococcus group; Bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacillus subtilis
                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-96051385; PubMed-7584024;
                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                          150 FASEIPRGAAIPELLAVFSFLPFYIRDYFKSYTKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         œ
                                                                                                                                                                                                                                                                           GASLYTAGAAAASGSLAGSLVALIILGFFWFKTKR 214
                                                                                                                                                                                                                                                                                                                                                                                                             LAVLIQVAAYAFLLFPFVALLRGGFQGRHEMLPSALSQMTEQFLRVAVLLG-LSFWLVKK 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F--LVSVLFFLSIIAYFI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---GGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGV--FDEVY------GWIH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LSTSGFPVIISKLMNDYSEKNHHTILKIS-ALFLSLIGILLFLCLYLGAVPIALFMGDSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KRHWIWQGAFVLILAGVITKILSAVYRVPFQNI----VGDVGFYIYQQVYPF--LGIAVM 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KHSWMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAI-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PF01943;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IPR002797;
       (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9.6%;
ilarity 24.7%;
Conservative 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein;
25 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA;
                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Polysacc_synt;
   39, Created)
39, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MW;
   sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 90.5; DE Pred. No. 6.7; 35; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DAAACAF32903E553 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----AISILDKSWIAVLLIIGHIAMWYL-H 149
                                                                                                         461
                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 532;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
```

Š

```
RESULT 12
ATP6_APILI
ID ATP6_APILI
AC Q00275;
                                                                                                                                                  .
Qy
                                                                           Вþ
                                                                                                  ş
                                                                                                                            Db
                                                                                                                                                                              밁
                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                         TRANSMEM
TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Relson K., Quackenbush J., Zhou L., Kirkness E.F., Peterson S., Quackenbush J., Zhou L., Kirkness E.F., Peterson S., Loftus B., Richardson D., Dodson R., Khalak H.G., Glodek A., McKenney K., Fitzgerald L.M., Lee N., Adams M.D., Hickey E.K., McKenney K., Gocayne J.D., Utterback T.R., Peterson J.D., Kelley J.M., Cotton M.D., Weldman J.M., Fujil C., Bowman C., Watthey L., Wallin Hayes W.S., Borodovsky M., Karp P.D., Smith H.O., Fraser C.M., Venter J.C.;
                                                                                                                                                                                                                                                                                                                                          TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAIN-26695 / AFCC 700392;
MEDLINE-97394467; PubMed-9252185;
Tomb J.-F., White O., Kerlavage A.R., Clayton R.A.,
Fleischmann R.D., Ketchum K.A., Klenk H.-P., Gill S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
TIGR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             between the Swiss Institute of Bioinformatics the European Bioinformatics Institute. There a use by non-profit institutions as long as i modified and this statement is not removed. Us
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pylori.";
Nature 388:539-547(1997).
Nature 388:539-547(1997).
-!- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Proteobacteria; Helicobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-MAY-2000 (Rel. 39, Last annotation update) VIRULENCE FACTOR MVIN HOMOLOG.
                                                                           446
                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Helicobacter pylori (Campylobacter pylori).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MVIN OR HP0885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "The complete genome sequence of the gastric pathogen Helicobacter
                                                                                                                                                                              333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SIMILARITY: BELONGS TO THE MVIN FAMILY
                                                                                                  130 DKSWIAVLLIIGHIAMWY 147
                                                                                                                            392
                                                                                                                                                  74 RNLYSWSRVKGSLIISMGV----FLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISIL 129
                                                                                                                                                                                                    15
                                                                           -KSWVT-----HLYLFY 456
                                                                                                                           LGLALANSLSGLFLFVLTIKAFGFQLFLGIIKNLKSWL---
                                                                                                                                                                                                    ILSESEPLTMIA-LAISMSSWENIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGL
                                                                                                                                                                            ITSQVFSLYLLGLLPFGLTKLFSLWLYAKLEQKKAAKISLISLF-LGLAASLSLMPLLGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HP0885;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AE000598;
                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                        51
96
123
123
126
229
259
259
294
402
                                                                                                                                                                                                                             Conservative
              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAD07933.1; -.
                                                                                                                                                                                                                                         9.5%;
22.5%;
                                                                                                                                                                                                                                                                                                        25
71
116
143
176
249
279
279
314
357
392
422
                                                                                                                                                                                                                                                                                           51618
                                                                                                                                                                                                                                                                                           ₩,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            epsilon subdivision; Helicobacter group;
                                                                                                                                                                                                                             32;
                                                                                                                                                                                                                                         Score
Pred.
                                                                                                                                                                                                                                                                                                                 POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                        POTENTIAL
              PRT;
                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                           62B7DA434967A46C CRC64;
                                                                                                                                                                                                                                         89.5;
No. 7
             226 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                      DВ
                                                                                                                                                                                                                             56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Usage
                                                                                                                            -VILFLACVEILLLLAF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and the
                                                                                                                                                                                                                                                     Length 461;
                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sutton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sutton G.G.,
., Dougherty B.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL
                                                                                                                                                                                                                             19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for
                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 commercia.
                                                                                                                                                                            391
                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ξ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             00
00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             its
way
                                                                                                                                                                                                                             6
```

```
RESULT 13
Y23B_MYCPN
ID Y23B_MYCPN
                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                               ₽
                                                                                                                                                                          QY
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                            ş
                                                                                В
                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-APR-1993 (
01-APR-1993 (
30-MAY-2000 (
ATP SYNTHASE
                                                                                                                                                                                                                                                                                                                                             PRINTS; PRO0123; ATPASEA.

PRINTS; PRO0123; ATPASEA.

PROSITE; PS00449; ATPASE_A; 1.

Hydrogen ion transport; CF(0); Mitochondrion; Transmembrane.

Hydrogen ion transport; CF(0); Mitochondrion; Transmembrane.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
modified and this statement is not removed. Usage by an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "The mitochondrial genome of the honeybee Apis mellifera: complete sequence and genome organization."; Genetics 133:97-117(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MO1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Crozier R.H., Crozier Y.C.; "The cytochrome b and ATPase genes of honeybee mitochondrial DNA."; Mol. Biol. Evol. 9:474-482(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATP6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; L06178; AAB96802.1; -. EMBL; M87065; AAA31634.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Crozier R.H., Crozier Y.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=93114603; PubMed=8417993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=92261310; PubMed=1533894;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pterygota; Neoptera;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Apis mellifera ligustica (Common
                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CBI_TaxID=7469;
                                                                                187
                                                                                                                                               137
                                                                                                                                                                            53
                                                                                                                                                                                                             77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DIRECT ROLE IN THE TRANSLOCATION OF PROTONS ACROSS THE MEMBRANE. SUBUNIT: F-TYPE ATPASES HAVE 2 COMPONENTS, CF(1) - THE CATALYTIC CORE - AND CF(0) - THE MEMBRANE PROTON CHANNEL. CF(1) HAS FIVE SUBUNITS: ALPHA(3), BETA(3), GAMMA(1), DELTA(1), EPSILON(1). CF(0) HAS THREE MAIN SUBUNITS: A, B AND C. SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.

SIMILARITY: BELONGS TO THE ATPASE A CHAIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: KEY COMPONENT OF THE PROTON CHANNEL;
                                                                                                                                                                                                                                            MSLNKHSWMDMIIFILSFSFPLT---MIALAISMSSWFN----IWNNALSDLGHAVKSS
                                                                                SILPINLMIQNMLLTLEIFMSMIQSYVFSILLIL
                                                                                                               HFL-VSVLFFLSIIAYFIAISILDKSWIAVLLII 140
                                                                                                                                                                            VAPIFNLGLAIGGILIVIVGLRNLY--SWS---RVKGSLIISMGVFLNLIGVFDEVYGWI 107
                                                                                                                                                                                                            ISLMLYIMITNIFSLIPYVFTLTSHLLLNMILSLTLWFSFLIYLIYNNYIMFLSHLVPLN 136
                                                                                                                                             -SPVFLMN-----FMVTIELISLIIRPWTLSIRLSANL-ISGHLILTLLGIF--ISNFI
                                                                                                                                                                                                                                                                                                                                                                                                                      PF00119; ATP-synt_A; 1.
                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Apidae; Apis
                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR000568; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel.
(Rel.
(Rel.
E A CHA
                                                                                                                                                                                                                                                                             Conservative
 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25, Created)
25, Last sequence update)
39, Last annotation update)
AIN (EC 3.6.1.34) (PROTEIN 6).
                                                                                                                                                                                                                                                                                           9.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Endopterygota; Hymenoptera; Apocrita; Aculeata;
                                                                                                                                                                                                                                                                             42;
                                                                                                                                                                                                                                                                                                          Score 89;
                                                                                                                                                                                                                                                                                              Pred.
   PRT;
                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 honeybee)
                                                                                                                                                                                                                                                                                              No.
 243
                                                                                                                                                                                                                                                                                              4
                                                                                220
                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                             51;
                                                                                                                                                                                                                                                                                                          Length 226
                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IT MAY PLAY A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                            24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for
                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CF(0)
                                                                                                                                                                                                                                            52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   no
                                                                                                                                                                                                                                                                            9
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACC OCC OCC RRY RACCOCC
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                      뫄
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                              RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                   METJA
Y233_N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                             01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence up
01-NOV-1997 (Rel. 35, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. STRAIN=ATCC 29342 / M129; MEDLINE=97105885; PubMed=8948633;
SEQUENCE FROM N.A.
STRAIN-JAL-1 / DSM 2661 / ATCC 43067;
MEDLINE-96337999; PubMed-8688087;
Bult C.J., White O., Olsen G.J., Zhou L.,
                                                                                                                                   HYPOTHETICAL
                                                                                                                                                                                     Q57685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pneumoniae.";
Nucleic Acids Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mycoplasma pneumoniae.
Bacteria; Firmicutes; Bacillus/Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
01-CCT-2000 (Rel. 40, Last annotation update)
HYPOTHETICAL PROTEIN MG323.1 HOMOLOG (PO1_ORF243).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P75314;
30-MAY-2000
                                                                                 Methanococcus
                                                                                            Archaea; Euryarchaeota;
                                                                                                           Methanococcus jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Herrmann R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=2104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mycoplasmataceae; Mycoplasma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MPN469 OR MP372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Complete sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Himmelreich R., Hilbert H., Plagens
                                                                                                                                                                                                                                                                     142 GFYFSVVAYCF-----WIALMLL
                                                                                                                                                                                                                                                                                            114 LFFLSIIAYFIAISILDKSWIAVLLI 139
                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                                                                                                                   13 IFILSFSFPLTMIALAI------SMSSWFNIWNNALSDLGHAVKSSVAPIFNL
                                                                                                                                                                                                                                                                                                                        91 NFVYSISSFGIAILALGLFSLF-----LMIFLG-YRWAISLFIKSQITKWERVIFST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
                                                                                                                                                                                                    METJA
                                                                                                                                                                                                                                                                                                                                                                         LFLLSFFVTAVMFLVGIFHTEQFTLNDQNQGISGFYLFWN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AE000035; AAB96020.1;
                                                                                                                                                                                                                                                                                                                                                                                                                               36;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                     PROTEIN MJ0233.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                               -GILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVF--DEVYGWIHFLVSV
                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58
119
163
224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24:4420-4449(1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   analysis of the genome
                                                                                                                                                                                                                                                                                                                                                                                                                                           9.4%;
24.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Transmembrane
                                                                                             Methanococcales; Methanococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MW;
                                                                                                                                                                                                                                                                                                                                                                                                                               23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 89; DB
Pred. No. 4.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DFD7355C3DD876FE CRC64;
                                                                                                                                                                                                                                                                     159
                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Η.,
                                                                                                                                                            update)
                                                                                                                                                                                                    277
                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pirkl E.,
                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of the
    Fleischmann
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      group; Mollicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                               41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bacterium Mycoplasma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ę
                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                         ---VKKP-ADIFNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             в. -с.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        is
for
                                                                                                                                                                                                                                                                                                                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                            90
                                                                                                                                                                                                                                                                                                                                                                                                                             8
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SO THE TENT OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 22.3 Matches 43; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                         UT2_HUMAN STANDARD, UT2_HUMAN STANDARD, UT2_HUMAN O15849; O1-NOV-1997 (Rel. 35, Created) O1-NOV-1997 (Rel. 35, Last sequence update) O1-OCT-2000 (Rel. 40, Last annotation update) O1-OCT-2000 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sutton G.G., Blake J.A., Fitzgerald L.M., Clayton R.A., Gocayne J.D., Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I., Overbeek R., Kirkness E.F., Weinstock G., Merrick J.M., Glodek A., Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D., Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C., Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M., Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.; "Complete genome sequence of the methanogenic archaeon, Methanococcus jannaschii."; Science 273:1058-1073(1996).
                                                                                                                                                        Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entitles requires a license agreement (See http://www.isborsend an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hypothetical TRANSMEM
MEDLINE=96228053; PubMed=8647271;
Olives B., Sonia M., Mattei M.-G.,
                                                           TISSUE-Kidney
                                                                                SEQUENCE FROM N.A.
                                                                                                                              NCBI_TaxID-9606;
                                                                                                                                                                                                           Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; U67479; AAB98226.1; TIGR; MJ0233; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SIMILARITY: TO M.JANNASCHII MJ1189.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44 DLGHAVKSSV---APIFNLGLAIGGIL-----IVIVGLRNLYSWSRV-----KGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBCELLULAR LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LPLNIIDIFISYS 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LPFYIRDYFKSYT 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FIISVISLWLYSKLAEVNYSVKGFYGFFEFKEIFKMIGIRYIILVIIIAIINFIISLIVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LIIGHIAMWYLHFASEIP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YIVGLVLLNII--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSII------AYFIAISILDKSWIAVL 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DIMHIIMSFLIYFGIIFIIGLIVSAIIGGYNVRIMKTTVEGLNVAPDWNNITDLLYRGIL 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 protein;
23 43
61 137
117 137
1144 16
197 21
221 24
243 26
277 AA; 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      263
31306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43
81
137
164
217
241
                                                                                                                                                        Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----FYFIPAILFVFGIFSLYISKIIGAFLIIISIL-----I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transmembrane.
3 POTENTIAL.
1 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X
X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 89;
Pred. No. 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL. 31F66D38BD552B39 CRC64;
                                                                                                                                                      Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ------RGAAIPELLAVFSF-----
  Matassi G.,
                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 277
  Rousselet G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
```

```
Q
                                                                                                                                                            QΥ
                                                                                                                                                                                                                         рь
                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SQUE TETT TO THE T
  멁
                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                     멂
                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collable between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MIM; 601611;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -i- FUNCTION: SPECIALIZED LÓW-AFFINITY UREA TRANSPORTER.
TRANSPORT IN KIDNEY.
-i- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.
-i- TISSUE SPECIFICITY: KIDNEY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ripoche P., Cartron J.-P., Bailly P.;
"Molecular characterization of a new urea transporter in
kidney.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transport;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -!- SIMILARITY: TO OTHER MAMMALIAN UREA TRANSPORTERS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEBS
  298
                                                                                                                                                                                                                                                                                                                                  144 WLLLPVIIMSMSCPILSSALGTIFSKW-------DL-----PVFTLPFNITVTL 185
                                                                                                                                                                                                                                                                              68 - IVIVGLRNLY-------SWSRVKGSLI---ISMGVFLNLIGVFDEVYG--- 105
                                                                                                                                                                                                                                                                                                                                                                                         8 WMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGIL
GMFYVITWQTHLLAIACALFAAYL--GAALANMLSVFGLPP
                                                    G--HIAMWYLH-----FASEIPRGAAIPELLAVFSFLP 171
                                                                                                                                                                                                                    YLAATGHYNLFFPTTLLQPASAMPNITWSEVQVPLLLRAIPVGI------GQVYGCDN
                                                                                                                                                                  -WIHFLVSVLFFL------SIIAYFIAISILD-----
                                                                                                              PWTGGIFLIALFISSPLICLHAAIGSTMGMLAALTIATPFDSIYFGLCGFNSTLACIAIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lett.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X96969; CAA65657.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   18; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         386:156-160(1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85
109
135
163
163
192
257
280
303
329
351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         43395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Glycoprotein.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   29;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 88.5; D
Pred. No. 7.3;
29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED (GLCNAC. . .) (POTENTIAL).
; 310AD64B1DFA9623 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ښ.
س
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                   59;
  336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                  ---KSWIAVLLII 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIATES
                                                                                                                                                                                                                                                                                                                                                                                                                                                85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UREA
                                                                                                                                                                                                                         237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  its
```

Search completed: May 30, 2001, 15:26:02 Job time: 117 sec

J

	v.				Ġ.
.					
		4.			
					**
		,			
			÷.		
		Ÿ			
					¥
4.					
	1	¥		1	
	r;				*
	ų.				
					a * ;
		1		1.0	
	·	1.			
			÷ -		
	•				
•				1,4	

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                     Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - protein search, using sw model
                                                                                                                                                                                                                                       Database :
                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                           Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      May 30, 2001, 15:23:50; Search time 22.38 Seconds (without alignments) 963.640 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                       374700 seqs, 117207915 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-382-242-33
942
                                                                                                                                                                                                                                      SPTREMBL_15:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSLNKHSWMDMIIFILSFSF.....AVFSFLPFYIRDYFKSYTKR 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                 sp_invertebrate:*
sp_manmal:*
sp_mhc:*
sp_plant:*
sp_rodent:*
sp_unclassified:*
sp_vertebrate:*
sp_virus:*
                                                                                                                                                                                 sp_archea:*
sp_bacteria:*
sp_fungi:*
                                                                                     sp_organelle:*
sp_phage:*
                                                                                                                                                                       sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                          374700
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

19	18	17	16	15	14	13	12	11	10	9	8	7	6	ر ت	4	ω	2		No.	B0011+
95.5	96.5	97.5	97.5	97.5	97.5	98.5	101.5	102.5	103.5	104.5	105.5	109.5	118	126.5	129.5	142	144.5	163.5	Score	
10.1	10.2	10.4	10.4	10.4	10.4	10.5	10.8	10.9	11.0	11.1	11.2	11.6	12.5	13.4	13.7	15.1	15.3	17.4	Match Length	de
371	485	566	565	360	231	360	365	293	600	373	401	512	165	156	183	192	156	175		
14	ν	œ	æ	N	æ	2	8	ഗ	N	Ν	2	N	1	٢	۳	1	_	Н	DB	
Q9YLF8	Q9PGI2	Q9MJ59	Q9MR91	Q9KM39	Q9ZZU5	Q9KLZ9	Q9XMT1	Q9VGYO	Q9KNN1	Q9RXQ6	Q9KS98	Q9RQP4	Q9Y8U9	Q9V1S7	059239	058000	059449	Q9V235	ID	
œ	Q9pgi2 xylella fas	Q9mj59 loligo blee	Q9mr91 loligo blee	Q9km39 vibrio chol	Q9zzu5 littorina s	Q9klz9 vibrio chol		Q9vgy0 drosophila		Q9rxq6 deinococcus	-	Q9rqp4 burkholderi	Q9y8u9 aeropyrum p	. Q9v1s7 pyrococcus	O59239 pyrococcus	O58000 pyrococcus	059449 pyrococcus	Q9v235 pyrococcus	Description	

RESULT

N

95 10.1 433 2 0984G6 95 10.1 921 10 098GH9	45	44	43	42	41	40	39	38	37	36	35 .	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
433 2 095466 921 10 9956H9 1320 5 027930 348 8 09TD57 1228 10 0956G3 510 2 0926G3 510 2 0924R8 5870 5 09X704 487 2 067873 395 2 0244575 407 2 066504 407 2 066504 419 10 09M0Y1 419 10 09M0Y1 452 2 0926690 273 2 0056090 313 8 099816 425 8 09M54 435 2 095876 643 1 029273 444 2 2 025239 274 8 036360 381 14 089558	90	90	90	90.5	91	91	91	91	91	91	91.5	91.5	91.5	92	92.5	92.5	93	93.5	93.5	93.5	94	94.5	94.5	95	95	95
2 098466 10 0986H9 5 027930 10 0986H9 11 0986G3 2 097D57 12 097GP3 2 097FP3 5 097FP3 5 097FP3 6 057873 6 057873 6 0980V1	9.6	9.6	9.6	9.6	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.8	9.8	9.8	9.9	9.9	9.9	9.9	10.0	10.0	10.0	10.1	10.1	10.1
Q9S466 Q9SGH9 Q9TD57 Q9TD57 Q9TD57 Q9TD57 Q9TSG3 Q9TD59 Q9SG3 Q9TD59 Q9TD5	517	381	274	442	643	563	435	425	313	273	452	419	267	407	395	303	487	870	587	393	510	1228	348	1320	921	433
	8	14	œ	N	Н	N	2	8	œ	2	N	10	N	N	ν	N	ν	Ç	U	Ν	N	10	8	u	10	N
	Q9TAK5	Q89558	Q36360	025239	029273	Q56876	Q9ZK40	Q9MD45	099816	066090	Q9ZD69	Q9M0Y1	Q9RNL1	066504	Q44575	034706	067873	'Q9XTQ4	Q9VGP3	Q9L4R8	Q9ZDE9	Q9SGG3	Q9TD57	Q27930	Q9SGH9	Q9S4G6
	Q9tak5	28955	Q36360	025239	029273	Q56876	Q9zk40	Q9md45	099816	066090	Q9zd69	Q9m0y1	Q9rn11	066504	Q44575	034706	067873	Q9xtq4	Q9vgp3	Q914r8	Q9zde9	Q9sgg	Q9td57	Q2 7 930	Q9sgh9 arabidopsis	Q9s4g6

ALIGNMENTS

Д	Оу	Оу	Qu Be Ma	SQ	DR	P R	RT	₽ ?	7 7 X	o x	8	SO	Q E	DŢ	DT	D P	3 5	Q9V235	RESULT
136 VL-LIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPF 172 : ::: ::::: 128 FLGLAVFCVSLPLALFSLKAFSGVAVAETVSILAFLIF 165	78 SWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFELSIIAYFIAISILDKSWIA 135 ::	24 MIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRNLY 77	Query Match 17.4%; Score 163.5; DB 1; Length 175; Best Local Similarity 34.8%; Pred. No. 0.00013; Matches 55; Conservative 28; Mismatches 64; Indels 11; Gaps 5;	Hypothetical protein. SEQUENCE 175 AA; 19133 MW; 19AB460C3DC15F79 CRC64;	EMBL; AJ240203; CAB49163.1;	ution.";	"Pyrococcus abyssi genome sequence: insights into archaeal chromosome	Heilig R :	SEQUENCE FROM N.A.	NCBI_TaxID=29292;	Archaea; Euryarchaeota; Thermococcales; Thermococcaceae; Pyrococcus.	Pyrococcus abyssi.	HYPOTHETICAL 19.1 KDA PROTEIN.	(TrEMBLrel. 14, Last	13,	01-MAY-2000 (TrEMBLrel, 13, Created)	COVIDER:		LT 1

```
0.59449
0.502
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.503
0.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-AUG-1998
01-AUG-1998
01-JUN-2000
                                                                                                                  Kawarabayasi Y., Sawada M., Horikawa H., Haikawa Y., Hino Y. Yamamoto S., Sekine M., Baba S.-I., Kosugi H., Hosoyama A., Sakai M., Ogura K., Otsuka R., Nakazawa H., Takamiya M., Ohf Funahashi T., Tanaka T., Kudoh Y., Yamazaki J., Kushida N., Aoki K.-I., Yoshizawa T., Nakamura Y., Robb F.T., Horikoshi Masuchi Y., Shizaya H., Kikuchi H.;
                                               "Complete sequence and gene organization thermophilic archaebacterium, Pyrococcus DNA Res. 5:55-76(1998).
                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                           Archaea; Euryarchaeota;
NCBI_TaxID=53953;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               058000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              058000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kawarabayasi Y., Sawada M., Horikawa H., Haikawa Y., Hino Y., Yamamoto S., Sekine M., Baba S.-I., Kosugi H., Hosoyama A., Naga Sakai M., Ogura K., Otsuka R., Nakazawa H., Takamiya M., Ohfuku Funahashi T., Tanaka T., Kudoh Y., Yamazaki J., Kushida N., Oguc Aoki K.-I., Yoshizawa T., Nakamura Y., Robb F.T., Horikoshi K., Masuchi Y., Shizuya H., Kikuchi H.;
                            EMBL;
                                                                                                                                                                                                                                                                               MEDLINE=98344137; PubMed=9679194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      059449
                                                                                                                                                                                                                                                                                                                                                                                                                                 Pyrococcus horikoshii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HYPOTHETICAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hypothetical SEQUENCE 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Complete sequence and gene organization of the genome of a hyper-thermophilic archaebacterium, Pyrococcus horikoshii OT3."; DNA Res. 5:55-76(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=98344137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=53953;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pyrococcus horikoshii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HYPOTHETICAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-AUG-1998
01-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129 LDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YSRTWRIIATITFTIMVILVSFKI----GLAIPELIGAAAILSYIL 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNL---GLAIGGILI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ANLLNRNL----LKISM-ILLILVGIFPEEEP-PHTPSAILMYL---LSFIDMGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IVMVIYF --- TIGLALVISQNPWESETKNALSDMGSA-KNPKGWMENLYIIGLGIIGIIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AP000007; BAA30904.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Euryarchaeota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N (TrEMBLrel. 07, L
0 (TrEMBLrel. 14, La
NL 17.5 KDA pp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TrEMBLrel. 07, Created)
(TrEMBLrel. 07, Last sequence update)
(TrEMBLrel. 14, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                          BAA29334.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KDA PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PubMed-9679194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KDA PROTEIN PH1785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17521 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15.3%;
                                                                                                                                                                                                                                                                                                                                                                                                     Thermococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Thermococcales; Thermococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 144.5; DB 1;
Pred. No. 0.0025;
30; Mismatches 59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PH0262.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              898EACD3F85401F6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156 AA
                                                                                                                                                                                                                                                                                                                                                                                                     Thermococcaceae; Pyrococcus.
                                                                      of the genome of a hyper-
horikoshii OT3.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64
                                                                                                                                                                                                                                                  Y., Hino Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                 Ohfuku
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pyrococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25;
                                                                                                                                                                                                                      Nagai Y.,
                                                                                                                                                                       Oguchi A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nagai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oguchi A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Υ.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
```

DT AC

Q9V1S7

PRELIMINARY;

PRT;

156

A

Q9V1S7; 01-MAY-2000 01-MAY-2000

(TrEMBLrel.

13, 13,

Created)
Last sequence update)

```
RESULT
Q9V1S7
                                                                             Š
                                                                                                                             Qγ
                                                                                                                                                                                                                                                                          RESULT
059239
                                                      밁
                                                                                                      뫄
                                                                                                                                                        В
                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SQ
                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    059239;
                                                                                                                                                                                                                                                                                                                     Kawarabayasi Y., Sawada M., Horikawa H., Haikawa Y., Hino Y., Yamamoto S., Sekine M., Baba S.-I., Kosugi H., Hosoyama A., N. Sakai M., Ogura K., Otsuka R., Nakazawa H., Takamiya M., Ohfu Funahashi T., Tanaka T., Kudoh Y., Yamazaki J., Kushida N., Oaki K.-I., Yoshizawa T., Nakamura Y., Robb F.T., Horikoshi K. Masuchi Y., Shizuya H., Kikuchi H.;
"Complete sequence and gene organization of the genome of a h thermophilic archaebacterium, Pyrococcus horikoshii OT3.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-AUG-1998 (TrEMBLrel. 07, Created)
01-AUG-1998 (TrEMBLrel. 07, Last sequence update)
01-JUN-2000 (TrEMBLrel. 14, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Archaea; Euryarchaeota;
NCBI_TaxID=53953;
                                                                                                                                                                                                                                                                        Hypothetical protein. SEQUENCE 183 AA;
                                                                                                                                                                                                                                                                                                 DNA Res. 5:55-76(1998).
EMBL; AP000006; BAA30722.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=98344137; PubMed=9679194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pyrococcus horikoshii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PH1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HYPOTHETICAL
                                                    148
                                                                             123 FIAISILDKSWIAVLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154 LLGVPLALWSL----KKFEGVAVAETISIVVFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            139
                                                                                                        88
                                                                                                                                                          30
                                                                                                                                                                                  28
                                                                                                                               82 VKGSLIISMGVFLNLIGVFD------EVYGWIHFLVSVLFF-----LSIIAY 122
                                                                                                                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4
                                                    ILALLGLFIPWPSVAL
                                                                                                                                                                        AISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILI-----VIVGLRNLYSWSR 81
                                                                                                        VGGAYISISSLFLALIGIFHAGTRPHVFVSTYFFIQFFLGMLIYGVGSKTAIRLTSIIIF
                                                                                                                                                        SISNNPWFSFFKNALSDLGDPAKASHPWIYNYGLIVTSPFVLAFSIYLIIAAKN--KIQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGLRNLYSW----SRVKGSLIIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IIG-HIAMWYLHFASEIPRGAAIPELLAVFSFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LGSVFLGLIGIFPEGTN-LHYEVSWGFFVSM---FLAILLLSISFLIRGNKLGIVGLMLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MG-VFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISILDKSWI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WWGITENAISDLGR-IGLPYNWVMNISLILGSVCLIIYG-----AWRFKKSKDIGWLLYM
                                                                                                                                                                                                          40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 Similarity 47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192
                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KDA
                                                                                                                                                                                                                                                                        20605 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21473 MW;
                                                                                                                                                                                                                     13.78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15.1%;
30.7%;
                                                    163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROTEIN PH1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thermococcales;
                                                                                                                                                                                                          22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32;
                                                                                                                                                                                                                     Score 129.5; DB Pred. No. 0.031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 142; DB 1;
Pred. No. 0.0044;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                          C0790C9DA464F92F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B4E2FEB7EBA219C9 CRC64;
                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thermococcaceae;
                                                                                                                                                                                                                                                                                                                          of the genome of a hyper-
horikoshii OT3.";
                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                          47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 192;
                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                    183;
                                                                                                                                                                                                                                                                                                                                                                                         Ohfuku
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pyrococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---AVLL
                                                                                                                                                                                                          27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30;
                                                                                                                                                                                                                                                                                                                                                                                          Nagai
fuku Y
                                                                                                                                                                                                                                                                                                                                                                           Oguchi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                 Y.,
                                                                                                        147
                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                89
                                                                                                                                                                                                                                                                                                                                                                           Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9;
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
 밁
                                                     Query Match
Best Local S
Matches 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local !
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                  "Complete genome sequence of an aerobic hyper-thermophilic crenarchaeon, Aeropyrum pernix K1.";
DNA Res. 6:83-101(1999).
EMBL; AP000064; BAA81551.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9Y8U9 PRELIMINARY; PRT;
Q9Y8U9; PRELIMINARY; PRT;
01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Pyrococcus abyssi genome sequence: insights i structure and evolution."; Submitted (JUL-1999) to the EMBL/GenBank/DDBJ EMBL; AJ248284; CAB49272.1; -.
                                                                                                                                                                                                                                 Kawarabayasi Y., Hino Y., Horikawa H., Yamazaki S., Haikawa Y.,
Jin-no K., Takahashi M., Sekine M., Baba S., Ankai A., Kosugi H.,
Hosoyama A., Fukui S., Nagai Y., Nishijima K., Nakazawa H.,
Takamiya M., Masuda S., Funahashi T., Tanaka T., Kudoh Y.,
                                                                                                                         Hypothetical SEQUENCE 1
                                                                                                                                                                                                         Yamazaki J., Kushida N., Oguchi A., Aoki K.,
Nomura N., Sako Y., Kikuchi H.;
                                                                                                                                                                                                                                                                                                            STRAIN-K
                                                                                                                                                                                                                                                                                                                                                                             Archaea; Crenarchaeota;
                                                                                                                                                                                                                                                                                                                                                                                                                       HYPOTHETICAL
                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Heilig R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-ORSAY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pyrococcus abyssi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAB0225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUN-2000 (TrEMBLrel. HYPOTHETICAL 17.2 KDA P
                                                                                                                                                                                                                                                                                           MEDLINE=99310339; PubMed=10382966;
                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=56636;
                                                                                                                                                                                                                                                                                                                                                                                            Aeropyrum pernix.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hypothetical protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=29292;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Archaea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                           32
                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17 SFSFPLTM-----IALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIV 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LDKSWIAVLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPFYI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLLGLVTSLMLKRKILTLSMAFLVLVGVFPEEKPLHTPSAILTYILAFTDMVIYG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLRNLYSWSRVKGSLIISMGVFLNLIGVFDE---VYGWIHFLVSVLFFLSIIAYFIAISI 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALSTALTLYFILGLALVVHENSWFSFSKNALSDMG-SLRNPKGWMFN-----VFIIGL
                          SSWFNIWNNALSDLGHAVKSSVAPIFNLGLAIGGILIVIVGL---RNLYSWSRVKGS-LI
SDWFVFTEHAFSDLG-GVKARMPWIYNYGLILVGLLVTLYSLCPYRAAVERLEAFGSGLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Euryarchaeota;
                                                                                                                        il protein.
165 AA; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GIWRVVGIGTFMVMLFLINLKVGLAIPELIGAASILAYIL 150
                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel. 12, Last sequence update) (TrEMBLrel. 13, Last annotation update) 18.1 KDA PROTEIN APE2535.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLrel. 14, Last annotation update) KDA PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17169 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13.4%; 25.3%;
                                                                                                                         18081 MW;
                                                    12.5%; Score 118; DB 30.4%; Pred. No. 0.18; tive 20; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thermococcales;
                                                                                                                                                                                                                                                                                                                                                                             Desulfurococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 0.04
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 126.5; DB bred. No. 0.043;
                                                                                                                         82E9EC27C6669C15 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   080E78DFDEC9DE8D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     insights into archaeal chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thermococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ä
                                                                                                                                                                                                                                                                                                                                                                             Desulfurococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                              1;
                                                      52;
                                                                                                                                                                                                                       Kubota K., Nakamura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            databases
                                                                               Length 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pyrococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27;
                                                     22;
                                                     Gaps
 61
                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                     5
```

```
RESULT
Q9KS98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
Q9RQP4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
 뮍
                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9RQP4;
                                                                                                        01-OCT-2000 (TrEMBLrel. 15,
01-OCT-2000 (TrEMBLrel. 15,
01-OCT-2000 (TrEMBLrel. 15,
AMINO ACID ABC TRANSPORTER,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAY-2000 (TrEMBLrel 13, Created)
01-MAY-2000 (TrEMBLrel 13, Last sequence up
01-CCT-2000 (TrEMBLrel 15, Last annotation
CYTCCHROME C OXIDASE SUBUNIT 1.
SEQUENCE FROM N.A.
STRAIN-EL TOR N16961 / SEROTYPE 01;
MEDLINE-20406833; PubMed-10952301;
                                                  Bacteria; Proteobacteria;
NCBI_TaxID=666;
                                                                                                                                                                           Q9KS98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INTERPRO; IPRO00883; -. PFAM; PF00115; COX1; 1. PRINTS; PR01165; CYCOXI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (AUG-1998) to the EMBL/GenBank/DDBJ databases. EMBL; AF087002; AAF13732.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sailan A.T., Zulkeflie Z., Mohamed M.R., Ariffin S.H., Er "The identification of cytochrome-c oxidase subunit 1 in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Burkholderia pseudomallei (Pseudomonas pseudomallei).
Bacteria; Proteobacteria; beta subdivision; Burkholderia group;
                                                                               Vibrio cholerae
                                                                                                                                                            Q9KS98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-D2175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Burkholderia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pseudomallei.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=28450;
                                                                                                                                                                                                                                             198 IAYYTLVPRAIGGKLYSDGMARISFILFLV
                                                                                                                                                                                                                                                                     148 LHFASEIPR---GAAIPELLAVFSFLPFYI 174
                                                                                                                                                                                                                                                                                               140 VAGAY -- LWGWTAVGAAIEILFQILPVAVGLKTTIDAGLARVFFSWTLHAIVYFWLIPAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                                                  15 ILSFSFPLTMIA------LAISMS-----SWFNIWNNALSDLGHAVKSSVAPIFNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                        96 LIGVFDEVYGW--IHFLVSVLFFLSIIAYFIAISI-----LDKSWIAVLLIIGHIAMWY 147
                                                                                                                                                                                                                                                                                                                                                                                                           27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAFPVYILIGITLGW 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWIAVLLIIGHIAMW 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAGLELALIGVY-PAGTRPHYFYSTWFFLQMDMALVALSLGAYRACRNLANMAALALSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISI-----
                                                                                                                                                                                                                                                                                                                                                                             GLA-----IG-----GILIVIVG------LRNLYSWSRVKGSLIISMGVFLN
                                                                                                                                                                                                                                                                                                                                                                                                         VMGYVFP-TLIAMGFGYAISELALKMPLVGRRWAWTGFW---LIGLGSVV--AMTPV-SL-79
                                                                                                                                                                                                                                                                                                                                                    GLSSVLYTFYPPMIGSPFYYLGVVLVVVGSWIWVALMSVNLYAWKKRNPGTPIPLAMFAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                              48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               512 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CYCOXIDASEI.
A; 56155 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             42; Mismatches
                                                                 gamma subdivision;
                                                                                                                     Last sequence update)
Last annotation updat
                                                                                                          PERMEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 109.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6B5433E207AD3EE0 CRC64;
                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No. 1.9;
                                                                                                                                                                                                                                             227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  512
                                                                                                                                                                          401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                          A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            61;
                                                                   Vibrionaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Burkholderia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LDK 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                               95
                                                                                                                                                                                                                                                                                                                                                      139
                                                                                                                                                                                                                                                                                                                                                                                                                                    59
```

13;

```
PERSOLPT

PRESOLPT

PRESOLPT

PRESOLPT

OXIO

PRESOLPT

OXIO

PRESOLPT

OXIO

PRESOLPT

OXIO

OX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Best L
                          Query Match
Best Local (
  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                 TIGK; INTERPRO; I...
INTERPRO; I...
77M; PF01594; U...
373 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Heidelberg J.F., Eisen J.A., Nelson W.C., Clayton R.A., Gwinn M.L., Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam L.A., Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D., Ermolaeva M.D., Vamathevan J., Bass S., Qin H., Dragoi I., Sellers P., McDonald L., Utterback T., Fleishmann R.D., Nierman W.C., White O., Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Venter J.C., Fraser C.M.;
                                                                                                                                                                                                                              radiodurans R1.";
Science 286:1571-1577(1999).
EMBL; AE001886; AAF09838.1;
                                                                                                                                                                                                                                                                                                                                White O., Elsen J.A., Heidelberg J.F., Hickey E.K., Peterson J. Dodson R.J., Haft D.H., Gwinn M.L., Nelson W.C., Richardson D.L. Moffat K.S., Qin H., Jiang L., Pamphile W., Crosby M., Shen M., Vamathevan J.J., Lam P., McDonald L., Utterback T., Zalewski C. Wakarova K.S., Aravind L., Daly M.J., Minton K.W., Fleischmann Ketchum K.A., Nelson K.E., Salzberg S., Smith H.O., Venter J.C. Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 15, Last sequence up
01-OCT-2000 (TrEMBLrel. 15, Last annotation
CONSERVED HYPOTHETICAL PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nature 406:477-483(2000).
EMBL; AE004215; AAF94519.1;
TIGR; VC1361; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Deinococcus radiodurans.
Bacteria; Thermus/Deinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9RXQ6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cholerae
                                                                                                                                                                                                                                                                                        "Genome Sequence of the Radioresistant Bacterium Deinococcus radiodurans R1.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-20036896; PubMed-10567266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9RXQ6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "DNA sequence of both chromosomes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match
Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVALIAGIIACWVLSIWATNRQRLTGQQTPMGRYILLLCVTFPVLVYFL 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AVLLIIGHIAMWYLHF - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YIETFRNL-PLLLQIFFWYFVVLQALPSARESMHLGEWFYLNIKGLYLAKPIFESGSIWV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMGVFLNLIGVFDEVYGWIHFLVSVL------FFLSIIAYFIAISILDKS--WI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ISQSLIPYDETYSYGRTFLVGLLNTALVSVLGILLATILGFLIGIARLSSNWLISRLAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSKHTNLLYNPTERSVVFQLLAVCVLAFFLYTIVNNALTNLESRGIATGFAFLEQTAGFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HSWMDMIIFILSF-SFPLTMIALAISMSSWENIWNNALSDL-------GHA 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        46;
  43;
                             Similarity
                                                                                                                                                                                 IPR002549;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  401 AA; 44207 MW;
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                 A,
                                                                                                                                                      UPF0118; 1.
                                                                                                                               40283 MW;
                          11.18;
27.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11.2%;
20.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38;
  29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----IFNLGLAIGGILIVIVGLRNLYSWSRVKGSLII
                          Pred. No. 3
                                                  Score 104.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 105.5;
Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --ASEIPRGAAIPELLAVFSFLPFYI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                               502D3FE29051E6F7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               76923D203A8C113A CRC64;
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of the cholera pathogen Vibrio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Deinococcales; Deinococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                  DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84:
  44;
                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2;
                                                                                                                               CRC64;
  Indels
                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                       Chardson D.L.,
M., Shen M.,
Zalewski C.,
                                                                                                                                                                                                                                                                                                                                                          Venter J.C.,
                                                  373;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     401;
  41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ľ.,
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               134
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7;
```

```
RESULT 11
Q9VGY0
ID Q9VGY0
AC Q9VGY0
DT 01-MAY
DT 01-JUN
DE CG4073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
Q9KNN1
                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρ
                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCOMENS AND ACCOMENS ACCOMENS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                           Q9VGYO;
01-MAY-2000
01-MAY-2000
01-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-OCT-2000
01-OCT-2000
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.

STRAIN-EL TOR N16961 / SEROTYPE 01;

MEDLINE-20406833; PubMed-10952301;

Heidelberg J.F., Eisen J.A., Nelson W.C., Clayton R.A., Gwinn M.

Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam L.A.,

Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D.,

Ermolaeva M.D., Vamathevan J., Bass S., Qin H., Dragoi I., Selle

McDonald L., Utterback T., Fleishmann R.D., Nierman W.C., White

Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Venter

Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
TIGR;
       CG4 073
                                                                                                                              Q9VGY0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacteria; Proteobacteria; NCBI_TaxID=666;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9KNN3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 THIOL: DISULFIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9KNN1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 406:477-483(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "DNA sequence of both chromosomes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        136 VLLIIGHIAMWYLHFASEIPRGAAIPELLAVFSFLPF 172
                                                                                                                                                                                                                                                     449
                                                                                                                                                                                                                                                                                                                                                   389
                                                                                                                                                                                                                                                                                                                                                                                                                                                 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              271 QHPYVLMGLSVLFVALALSMFGLYSLQLPSGVQTWLNSLSNAQQG---GSLPGVFAMGAIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            248 -LTIVG------IPSAAAIGFLAGAFNIVPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        142
                                                                                                                                                                                                                                                                                                   164 LAVESEL 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                y Match
Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5 KHSWMDMIIFILSESEPLTMIAL-AISMSSWENIWNNALSDLGHAVKSSVAPIENLGLAI 63
                                                                                                                                                                                                                                                                                                                                                                               IHFLVSVLFFLSIIA-YFIAISILDKSWIAVL-LIIGHIAM-WYLHFASEIPRGAAIPEL 163
                                                                                                                                                                                                                                                   IGIVAIL
                                                                                                                                                                                                                                                                                                                                                   MERVKTLFGFVLLAAPIFLLERIVPEFWSSVLWSALGLAAFGWLYHVKNSLPFGGWKQSL
                                                                                                                                                                                                                                                                                                                                                                                                                                              GLYCSPCTTAPLSGALLYVAQSGDLLTGAVALYALAIGMGIPLILVAVFGNKLLPKAGNW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ASLLRAFPRPWQPKVLEFSDLIGT--AVGGYVRGQL-----LIAAFIGIFV----WLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMSSWF-NIWNNALSDLGHAVKSSVAPIFNLGLAIGGI-----LIVIVGLRNLYSWSRVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALRDWIANIGNNIVPILQNAL-SSTGTLFNRLISIGGVIGQVLLILLLSVYLMLDYARVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AE004336; AAF95841.1; -. VC2701; -.
     PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            L Similarity
42; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                600
                                                (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TrEMBLrel. 15, (TrEMBLrel. 15, (TrEMBLrel. 15,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                              (TrEMBLrel.
                                                                                                                            PRELIMINARY,
                                                                                                                                                                                                                                                     455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INTERCHANGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVF-----DEVYGW 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --VFLNLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISILDKSWIA 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65209 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11.0%; 22:5%;
                           13,
14,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gamma subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
Last sequence update)
Last annotation update)
PROTEIN DSBD.
                           Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 103.5;
Pred. No. 5.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23D01D76F730249C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of the cholera pathogen Vibrio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                            293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Vibrionaceae; Vibrio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Venter J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sellers P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            M.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .c.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        200
                                                                                                                                                                                                                                                                                                                                                   448
                                                                                                                                                                                                                                                                                                                                                                                                                                              388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
```

7;

a

```
Š
                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                   RA George R. A. Lewis S. E. Richards S. Asiburner M. Henderson S. N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Hrandon R.C., Rogers Y. H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Hank K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Hank K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Hank K.H., Doyle C., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Beeson K.C., Busam D.A., Butler H., Cadleu E., Center A., Chandra I.,
RA Burtis K.C., Busam D.A., Butler H., Cadleu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Fleischmann W.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gana P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Wei M.-H., Ibegwam C.,
RA Liuk X., Mattel B., McIntosh T.C., McLeod M.-H., Ibegwam C.,
RA Liuk X., Mattel B., McIntosh T.C., McLeod M.-H., Ibegwam C.,
RA Liuk X., Mattel B., McIntosh T.C., McLeod M.P., McPherson D.L.,
RA McIntosh T., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
Liu X., Mattel B., McIntosh T.C., McLeod M.P., McPherson D.L.,
RA McIntosh D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Melson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Melson D.R., Nelson K.A., Saunders R.D.C., Scheeler F., Shen H.,
RA Spier E., Spradling A.C., Staplecon M., Strong R., Sun E.,
RA Spier E., Spradling A.C., Staplecon M., Strong R., Sun E.,
RA Spier E., Spradling A.C., Staplecon M., Strong R., Sun E.,
RA Lasko P., Lei Y., Lewitsky A., Shih H., Venter J.,
RA Lasko P., Edwin M.R., Shong R., Sun G., Shang S., Zhu X., Smith H.O.,
RA Spier E., Shang R., S
                                 QΥ
                                                                             В
                                                                                                                                                             망
                                                                                                                                                                                                                                         뮍
                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Adams M.D., Celniker S.E., Holt R.A., Ev
Amanatides P.G., Scherer S.E., Li P.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                        FLYBASE; FBgn0037827; CG4073.
SEQUENCE 293 AA; 32710 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=20196006; PubMed=10731132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CG4073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drosophila
  226
                                       155
                                                                               182
                                                                                                                                                             122
                                                                                                                                                                                                 64
                                                                                                                     95
                                                                                                                                                                                                                                         73
                                                                                                                                                                                                                                                                                   ഗ
MRYVSMVSLIYVASLILFTI
                                     PRGAAIPELLAVFSFLPFYI 174
                                                                                                                                                                                                                                                                                 KH-SWMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLGLAI 63
                                                                                                                     NLIGVFDEVYGWIHFLVSVLFFLSIIAYFIAISILDKSWIAVLLIIGHIAMWYLHFASEI 154
                                                                                                                                                                                                     GGILI--
                                                                                                                                                                                                                                         KHLGWVYLIHAVLSASAVIQLVVLRL-------CNKDFGELISPSVPSFVWLLLAV 121
                                                                                                                                                           GCVLIMAYVYLANQCPCNGLLAIVIVEVIVIFVNCHRWARLSMLWMTGVLSLVLALNVML
                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               melanogaster (Fruit fly).
                                                                                                                                                                                                                                                                                                                           Conservative
                                                                               VYLPLKILPGSIFM--IVLTFCCIAIV---
                                                                                                                                                                                                                                                                                                                                          10.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                          MW;
                                                                                                                                                                                                                                                                                                                         32;
                                                                                                                                                                                                                                                                                                                       Score 102.5;
Pred. No. 3.5;
32; Mismatches
                                                                                                                                                                                                 ---VIVGLRNLYSWSRVKG-----SLIISMGVFL
                                                                                                                                                                                                                                                                                                                                                                                                                          7B099E726C6916D0 CRC64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R.A., Evans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        vans C.A., Goca
Hoskins R.A.,
                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                               DB
                                                                               -VSIYLIV---
                                                                                                                                                                                                                                                                                                                         62;
                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                           Length 293;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gocayne J
.A., Galle
                                                                               YLNGNRYI
                                                                                                                                                                                                                                                                                                                       57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽.F.
                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                   94
                                                                                                                                                                                                                                                                                                                       œ
```

```
RESULT
Q9XMT1
         RESULT 13
Q9KLZ9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A CONTRACTOR OF THE CONTRACTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                      01-0CT-2000
01-0CT-2000
01-0CT-2000
MEDLINE-20406833; PubMed-10952301;
Heidelberg J.F., Eisen J.A., Nelson W.C., Clayton R.A., Gwinn M.L.
Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam L.A.,
Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D.,
Ermolaeva M.D., Vamathevan J., Bass S., Qin H., Dragoi I., Sellers
McDonald L., Utterback T., Fleishmann R.D., Nierman W.C., White O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Burger G., :
Lang B.F., (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1999
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9XMT1;
01-NOV-1999
                                                                                                                                                SEQUENCE FROM N.A.
STRAIN=EL TOR N16961 /
                                                                                                                                                                                                                                                                 Vibrio
                                                                                                                                                                                                                                                                                                                  PEPTIDE ABC
                                                                                                                                                                                                                                                                                                                                                                                                               Q9KLZ9;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9KLZ9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INTERPRO; IPRO01064; -.
PROSITE; PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Complete sequence, gene content a
genome of Tetrahymena pyriformis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Edqvist J., Burger G., Gray M.W.;
"Expression of mitochondrial protein-coding genes
pyriformis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Alveolata;
Tetrahymenina; Tetrahy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mitochondrion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tetrahymena
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORF365.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9XMT1
                                                                                                                                                                                                                                             Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                              VCA0590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mitochondrion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (JUN-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mitochondrial DNA."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=5908;
                                                                                                                                                                                                                     NCBI_TaxID=666;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              211 MIVFSIFYIFTLTGTTEWSVVNFIISSNNQINYLNNKIAILFIAIILLIGFIIKLGIAPI 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      302 SLIFIYYLS-ALINYYWL-LLLLVSIIGILYI 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                117 LSIIAYFIAISILDKSWIAVLLIIGHIAMWYL 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11 MIIFILSFSFPLT-----MIALAISMSSWFNIWNNALSDL------GHAVKSSVAPI 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FNLGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFF 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tted (JUN-1999) to the EMBL/GenBank/DDBJ databases. AF160864; AAD41932.1; -.
                                                                                                                                                                                                                                                                   cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
37; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (JUN-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gray M.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zhu Y.,
                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pyriformis.
                                                                                                                                                                                                                                                                                                                  TRANSPORTER,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tetrahymena
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----QLYKIEIYKG------LPFLSIF--FYTTFYFLVFFLFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Littlejohn T.G., Greenwood S.J., Schnare M.N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene content and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              43578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ciliophora;
                                                                                                                                                   SEROTYPE 01;
                                                                                                                                                                                                                                                                                                               15, Created)
15, Last sequence update)
15, Last annotation update)
, PERMEASE PROTEIN, PUTATIVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12,
13,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MW.
                                                                                                                                                                                                                                             gamma subdivision; Vibrionaceae; Vibrio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 101.5; |
Pred. No. 4.9;
27; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04FF18A0D1252D74 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Oligohymenophorea; Hymenostomatida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Comparison
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organization mparison with
                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                     ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of the mitochondrial Paramecium aurelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in Tetrahymena
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                    Gwinn M.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      45;
                               Sellers P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7;
```

```
PRESULT

OPEZULT

OPE
  밁
                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RA RT RA DR RT DR
                                                                                              Query Match
Best Local S
Matches 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9ZZU5;
Q9ZZU5;
01-MAY-1999
                                                                                                                                                                                                          PROSITE; PS00449; ATPASE_A; 1.
Mitochondrion; Hydrogen ion transport; CF(0); Transmem SEQUENCE 231 AA; 25478 MW; 7EEAF487BC53A67A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wilding C.S., Mill P.J., Grahame J.;

"Partial sequence of the mitochondrial genome of Littori relevance to gastropod phylogenetics.";

Submitted (JAN-1999) to the EMBL/GenBank/DDBJ databases.

-I- FUNCTION: KEY COMPONENT OF THE PROTON CHANNEL; IT MADIRECT ROLE IN THE TRANSLOCATION OF PROTONS ACROSS T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nature 406:477-483(2000).
Nature 406:477-483(2000).
EMBL; AE004389; AAF96492.1; -.
TIGR; VCA0590; -.
SEQUENCE 360 AA; 40400 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Salzberg
Fraser C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY-1999 (TrEMBLrel. 10, Last sequence update) 01-MAY-2000 (TrEMBLrel. 13, Last annotation update) ATP SYNTHASE A CHAIN (EC 3.6.1.34).
                                                                                                                                                                                                                                                                                            PFAM; PF00119; ATP-synt_A; 1. PRINTS; PR00123; ATPASEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Mollusca; Gastropoda; Cae
Neotaenioglossa; Littorinoidea; Littorinidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cholerae
                                                                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: BELONGS TO :
EMBL; AJ132137; CAA10596.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Neotaenioglossa;
NCBI_TaxID=31220;
                                                                                                                                                                                                                                                                                                                                            INTERPRO; IPR000568; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mitochondrion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Littorina saxatilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "DNA sequence of both chromosomes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    234 GGFATLSMLTKN 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 LAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYGWIHFLVSVLFFLSII 120
                                                                                                                                                                                                                                                                                                                                                   æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MSLNKHSWMDMIIFILSFSFPLTMIALAISMSSWFNIWNNALSDLGHAVKSSVAPIFNLG
                                            SLNKHSWMDMIIFILSFSFPLTMIALAISMSSWFN--IWNNALSDLGHAVKSSVAPIFNL
  SFDDNNQVFMSLYMLMWAFSLVII-LIFSSSYWVTGPRWAPIISLFKDTISSQVFRSF--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AYFIAISILDKS 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VSISLGLWSTLLIYLI--SIPLG-ISKAIHHGSRFDVWSSAVVIIGYAIP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FLFAIILIILFASGNYFSWFPLRGLVSDNFASLPWYQQVLD--YFW-HLTLPTL--AMVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            34;
                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel. 10,
                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Smith H.O., Colwell R.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10.5%;
                                                                                            10.4%; Score 97.5; D
24.2%; Pred. No. 6.2;
tive 34; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 98.5;
Pred. No. 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FC19A38223D26E2A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the cholera pathogen Vibrio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mekalanos J.J., Venter J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Caenogastropoda;
dae; Littorina.
                                                                                                                                           DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                              63;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52;
                                                                                                                                                                                                                                             Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of Littorina saxatilis:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CF(1) - THE CATALYTIC
                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MAY PLAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       THE MEMBRANE
                                                                                                                                              231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17;
                                                                                              69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             င့်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                        CF(0)
64
                                               59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                              12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
```

```
RESULT
Q9KM39
ID Q9
AC Q9
AC Q9
DT Q1
DT 01
DT 01
DT 01
OT 0
                                                  Š
                                                                                                           밁
                                                                                                                                                              Š
                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
g
                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-OCT-2000
01-OCT-2000
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9KM39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson Ermolaeva M.D., Vamathevan J., Bass S., Qin H., Dragoi I., McDonald L., Utterback T., Fleishmann R.D., Nierman W.C., W Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Ve Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hypothetical protein SEQUENCE 360 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nature 406:477-483(2000).
EMBL; AE004386; AAF96452.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-20406833; PubMed-10952301;
Heidelberg J.F., Eisen J.A., Nelson W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN-EL TOR N16961 / SEROTYPE 01;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VCA0550.
Vibrio cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HYPOTHETICAL PROTEIN VCA0550.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rigr; vcA0550;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=666;
                                                                                                                                                                                                                               197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111 LWLSLLISGTFFNPSSVVAGLLPMGAPAPLNPFLVLIESVSILVRPITLSVRLMANMSAG 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     142 HIAMW----YLHFASEIPRGA-----AIPELLAVFSF
                                                                                                                                                                    50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65
                                                                                                                                                                                                                                                                                                                                           Local Similarity
les 45; Conserv
                                                                                                                                                                                                                                                             8 WMDMIIFILS--FSFPLTMIALAI----SMSSW-----FNIWNNALS------DLGHAV 49
                                                  W-----IHFL-----VSVLFFLSIIAYFIAI-----SILDKSWIAVLLIIG
                                                                                                                                                                                                                            WQDVVISIMGPCFGFLLSLLLVGVYWVTDSPFWAALAVFNAFLNLFNLLPVLPLDGGHIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HIVLTLIGNYMTTSLFMP-GAFSMLLLISIQVLYTIFEF
WRQRHHSHLLPLNRYAQMVSTIWYFALVSGLIAIIIGFASTGDTLLSLPLLILG
                                                                                                           KS---VSFSMNSKMGVILCVLAILGGI-----ALSYSLGLTLFGFLLLMGALDIVFE
                                                                                                                                                                    KSSVAPIFNLGLAIGGILIVIVGLRNLYSWSRVKGSLIISMGV----FLNLIGVFDEVYG 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLSLGGFLNVITGL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -WIHFLVSVLFF -- LSIIAYFI ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40265 MW;
                                                                                                                                                                                                                                                                                                                                                                  10.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15, Created)
15, Last sequence update)
15, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gamma subdivision; Vibrionaceae; Vibrio.
                                                                                                                                                                                                                                                                                                                                              29;
                                                                                                                                                                                                                                                                                                                                                                  Score 97.5;
Pred. No. 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       999D1FFB2FD08887
                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --FLFLIFLNLAGLIPYVFSPTSHLAVSLSLGLP 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of the cholera pathogen Vibrio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----AISILDKS-WIAVLLI----IG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Clayton R.A., Gwinn M.L.,
                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     169
                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                                                                                                                                                                                                                                                              49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                Length 360;
                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                White O.,
Venter J.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 White
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         L.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sellers P.,
                                                  141
                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                               256
                                                                                                                                                                                                                                                                                                                                              10;
```

Search completed: May 30, 2001, 15:25:50 Job time: 120 sec

Ş

60

GLAIGGILIVIVGLRNLYSWSRVKGSLIISMGVFLNLIGVFDEVYG-----

105

THIS PAGE BLANK (USPTO)